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# The American Druggist

AN

ILLUSTRATED MONTHLY JOURNAL

OF

Pharmacy, Chemistry and Materia Medica

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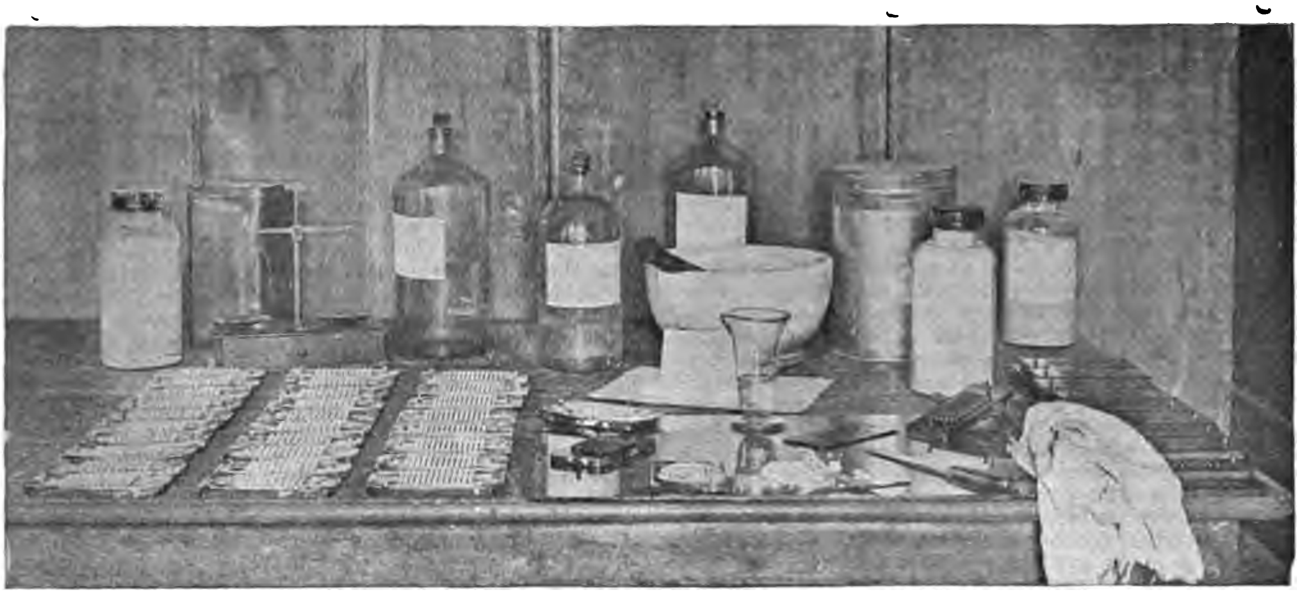
## NOTES ON PRACTICAL PHARMACY.

### Fuller's Tablets.

THE following description of a novel and valuable pharmaceutical method is based upon two papers by Dr. Robert M. Fuller, of New York, published in *The Medical Record* of March 9th, 1878, and March 25th, 1882, and in New Remedies, for March, 1878. The method was originated by Dr. Fuller, who has very generously given it to the public and voluntarily denied himself the very considerable income which would have resulted from a patent-right. Since its introduction it has been used almost entirely, until within a couple of years, by New York pharmacists, several of whom manufacture a long list of preparations of this class and sell thousands of bottles of medicated tablets annually. Within about two years, pharmacists in other cities have undertaken their manufacture, and there is now a very considerable demand for accurate information respecting the method and apparatus.



A tablet-maker's apparatus.

The essential feature of this form of dose-dispensing is a minute lozenge or *tablet*, as it is called, made by pressing a paste into perforations made in a plate of glass, metal, hard-rubber, or any other available and suitable material. These holes are of uniform diameter and the plate of uniform thickness in each instrument, and the number of holes to each plate is determined by their relative size. The plates made thus far contain from fifty to two hundred and fifty perforations, and the tablets made by their use weigh from a half grain to four grains, although larger tablets can readily be made with the aid of appropriate plates. To facilitate removal of the tablets from the perforations, Dr. Fuller uses a similar plate in which are corresponding perforations holding pegs somewhat longer than the thickness of the plate in which the tablets are formed. Still longer pegs at the ends or corners serve to secure accurate registration, and when the filled plate is guided by the long pegs, the short pegs lift the finished tablets out of their matrices, and the process of removal is accomplished. Each peg supports a corresponding tablet in a position which favors rapid drying, and the tablets are allowed to remain thus supported until they are hard enough to endure handling.

Early in the development of this method, Dr. Fuller had constructed a variety of appliances having this principle as a basis, one of which consists of an arrangement of wedges which are made to approach or recede by means of a double screw, and regulate the distance to which the pegs will penetrate the holes of the upper plate. The apparatus is found, however, to be impracticable, and nothing yet suggested is as efficient or convenient as the plate illustrated in Fig. 2, and described above. In using it, the plate is laid upon a pill-tile or plate of glass, and the paste is spread upon the upper surface and forced into the holes with a spatula. It would be possible to dispense with the pegged plate and to allow some varieties of tablet to harden in the holes, and be removed subsequently by tapping the plate or by forcing them out with a rod of suitable size. Owing to the adhesive nature of other varieties, this would be a comparatively tedious process, and the use of a pegged plate is practically the best plan in all cases.

The composition of the paste or mass varies with the special indications. To quote Dr. Fuller's words:

"The soluble tablets generally consist simply of certain medicines made into soluble paste with the aid of sugar of milk and alcohol or water. In some instances, however, it is found necessary to employ an excipient more adhesive than sugar of milk. But in such cases, of course, as little of such excipient as possible should be used, in order that the tablet may be readily soluble in the mouth or stomach, or diffusible in a spoonful of water, and thus administered.

"The tablets are intended to embrace any medicines that can be made into a paste which is not too tenacious, such as fluid extracts or sugar of milk containing any percentage of a chemical, such as arsenious acid, sulphate of morphine, muriate of ammonia, etc., "and can be made with alcohol of 85%, or over, and pulverized acacia, according to the adhesiveness required. When fluid extracts are used, one minim or less can be mixed with a compound of two grains or less of sugar of milk and pulverized acacia and then made into a paste with 85% alcohol."

Tablets made of sugar of milk and 85% alcohol, or with water alone, and called by Dr. Fuller *tablet saturates*, are used for subsequent medication with fluid extracts or tinctures. The method of medication consists in arranging a number of tablets upon a glass plate either in contact or separated. In the former case the fluid extract or solution is poured upon them in the proper proportion, and on allowing them to remain covered for a time the medicinal solution becomes evenly distributed through the tablets. In the latter case the appropriate quantity of solution can be dropped, by means of a pipette, upon each tablet. After saturation is accomplished, the tablets are to be uncovered and the alcohol or water of the solution allowed to evaporate.

Another variety of paste or mass can be made by thoroughly triturating mineral, metallic, or vegetable substances with milk sugar until complete subdivision and mixture of the medicinal element have been accomplished, when the paste is made with the aid of water or alcohol and treated as above described. This method is unquestionably the best in existence for the dosage of active remedies, and for this purpose is certain to become generally employed.

An essential feature of the tablets made of drugs with the appropriate quantity of milk sugar is *prolonged trituration*, whereby the active principle is minutely divided and distributed uniformly through the mass. We shall have something to say in a subsequent paper respecting this process and appliances which render it thorough with economy of labor.

The circumstance which has thus far interfered most with the general introduction of this process is the fact that the manufacture of the tablet plates is *not* protected by a patent. At present it is difficult to find any one to undertake their manufacture, for the reason that to make it profitable it needs to be done on a large scale, and there is a very natural disinclination to invest money in materials and machinery for making an article which may have but a limited demand, while there can be no limit to the competition which will be stimulated after the article has been introduced at an expense for advertising, etc. Some of the makers of tablets in New York have been obliged to go to considerable expense in order to obtain the necessary plates, but the general demand has lately become so considerable as to lead A. G. Newman, of 1180 Broadway, makers of builders' hardware, to undertake their construction, and many of the plates used by those who have lately commenced the manufacture of tablets have been obtained from this source.

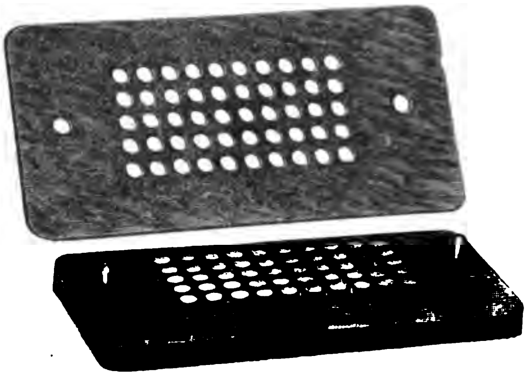


Fig. 2.—The tablet plate.

### PILL SATURATES.

In the course of his paper on *tablets*, Dr. Fuller mentions some valuable points in the practical usefulness of the No. 60 homœopathic pills of cane-sugar as vehicles for the active principles of watery, alcoholic, and ethereal solutions. The advantage possessed by the milk-sugar tablet as compared with these pills of cane-sugar is that the former is more porous and will take up a relatively larger proportion of drug. The facts mentioned by Dr. Fuller, in connection with the cane-sugar pills, may be utilized in the medication of tablets, and are, in effect, as follows:

When alcohol of 80% or more is the solvent, the solution to be introduced into the cane-sugar pill can be of any strength. The principle applies also to other solvents, such as ether, in which sugar is insoluble, and which will evaporate on standing. When water, or alcohol of *less* than 80% is the solvent, the solution should be concentrated to avoid dissolution of the pills. The capacity of absorption possessed by the pills is varied, the maximum being one minim to about fifteen and one-half grains when the solvent is alcohol of 80% and over. The proportion, however, is not so large when concentrated aqueous solutions or alcoholic solutions of less than 80% are used."

[To be continued.]

◆

**Medicated Gelosin.**—Repeated reference has been made to the advantages which agar-agar possesses over gelatin as a basis for suppositories and pharmaceutical preparations. At one time it appeared that the substance would become popular, but it had been almost forgotten until it came into use recently for bacteriological work. We observe that at a recent meeting of the Société de Thérapeutique, Paris, M. Guérin read a communication on Gelosin, which is obtained from the Japanese alga. It is in the form of whitish films. It mixes easily with substances soluble in alcohol and water, and is of great value in preparing suppositories. It gradually contracts and expels the water and medical substances it contains, which are thus spread over the surface of wounds or cavities, in which it is placed in any form. M. Guérin showed specimens of cylinders and slabs of gelosin, containing camphor, creasote, sulphate of zinc, cocaine, tincture of belladonna, iodoform, corrosive sublimate, carbolic acid, etc. In making preparations from gelosin, it is first, like gelatin, immersed in its own weight of hot water until soft; the therapeutic agent is then incorporated, and when the mixture becomes as thick as syrup it is poured into moulds. The liability of the base to contract may be counteracted by adding glycerin to the mass, just as in the case of gelatin suppositories.—After *Chem. and Drugg.*

[Original Communication.]

## PHARMACOGNOSTICAL NOTES.

BY PROF. JOS. SCHRENK,

Of the College of Pharmacy of the City of New York.

### TARAXACUM.

Our authorities state quite positively that taraxacum root contains a central wood-cylinder *without any pith.*[*] In a very large number of roots taken from various commercial samples I found a distinct pith. From ten to fifteen fibro-vascular bundles surrounded by parenchyma tissue include the pith, the diameter of which in some instances exceeds the thickness of the woody zone several times. In other respects, the structure of the roots was normal, the concentric arrangement of the laticiferous ducts in particular excluding any possibility of mistaking the specimens for chickory, etc.

### BELLADONNA.

Of this root it is stated that bast-cells are entirely wanting in it.[†] In a few specimens, I found some bast-cells in close proximity to the cribrose tissue, either singly or in pairs. Their walls are thickened in the manner of most bast-cells, and canals are sparingly seen in them. I had to remove the amylum and to stain the sections before I could detect these cells. Their number is exceedingly small, which might account for their having been overlooked.

### VERATRUM VIRIDE.

I always found our veratrum in swampy places, along water courses, ditches, etc., and from such localities it is also reported in our botanical books,[‡] while in Maisch, "Materia Medica," "rich woods" is given as its habitat.

No characters are given by either European or American pharmacognocists by which the rhizoma of Veratrum viride might be distinguished from that of the European Veratrum album. Flückiger says: [§] . . . "it is quite impossible to distinguish their root-stocks from one another." The endodermis of Veratrum viride consists of cells which have their *inner* and radial walls much thickened. As Flückiger states[‖] that the endodermis cells of Veratrum album have their *outer* walls more thickened than their inner, I expected to be able to distinguish the two species by this difference. A close examination of Veratrum album, however, proved that the endodermis cells of this species have the same structure as those of Veratrum viride, and we have to consider the word "outer" in Flückiger's standard work, no doubt, as a misprint for "inner." The only difference I could find in the structure of the endodermis cells was, that in V. album their walls were much more thickened than in V. viride, and in the root the lumen left by the thickening had, in the cross sections, the form of a U in V. viride, and of a V in V. album.

Many samples of the drug sold as Veratrum viride that have come under my notice were *very much lighter* than those of the European species; they were not compact and hard, but of a decidedly loose and spongy structure. My students never failed to recognize such specimens as V. viride from among root-stocks of both species, after their attention had once been directed to this difference. Most likely, these light root-stocks had not been gathered at the proper time; it remains to be learned whether (as seems to be probable) they are of inferior quality and ought to be rejected.

### CYPRIPEDIUM PUBESCENS.

According to Gray [¶] and Maisch,[**] this species of Cypripedium grows in "bogs and low woods," and "swampy places." I have frequently found it well established in rather dry woods on hillsides, although not so luxuriant as in wet places.

Maisch (l. c.) says of the rhizoma: "nucleus sheath absent." I have examined numerous specimens, both of the commercial drug and of the living plant which I gathered myself, and in all of them I found the endodermis developed distinctly enough to leave no doubt about its presence. In some cases, the endodermis can be detected only with difficulty, because the walls of its cells are hardly thickened at all, and might easily be mistaken for cells belonging to the adjoining "ground tissue," Fig. A. But by applying the proper reagents (chromic acid, iodine, and sulphuric acid, or double staining after bleaching), we can very plainly see the cutinized radial walls characterizing all endodermis cells.

In most cases, these tests are not necessary, for usually the endodermis cells have their walls much thickened, either all around, Fig. B, or on the inner (centripetal) and radial sides only, Fig. C. In the former case, thick-walled cells are freely intermingled with thin-walled ones; in the latter case, there are only few cells with thin walls.

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[*] Berg, "Anat. Atlas," etc., p. 12, plate viii.; Flückiger, "Pharmacognosie d. Pflanzenreichs," p. 407.

[†] Berg, l. c., p. 23, plate xiii.

[‡] Gray, "Manual," p. 525.

[§] L. c., p. 310.

[‖] L. c., p. 308.

[¶] L. c., p. 512.

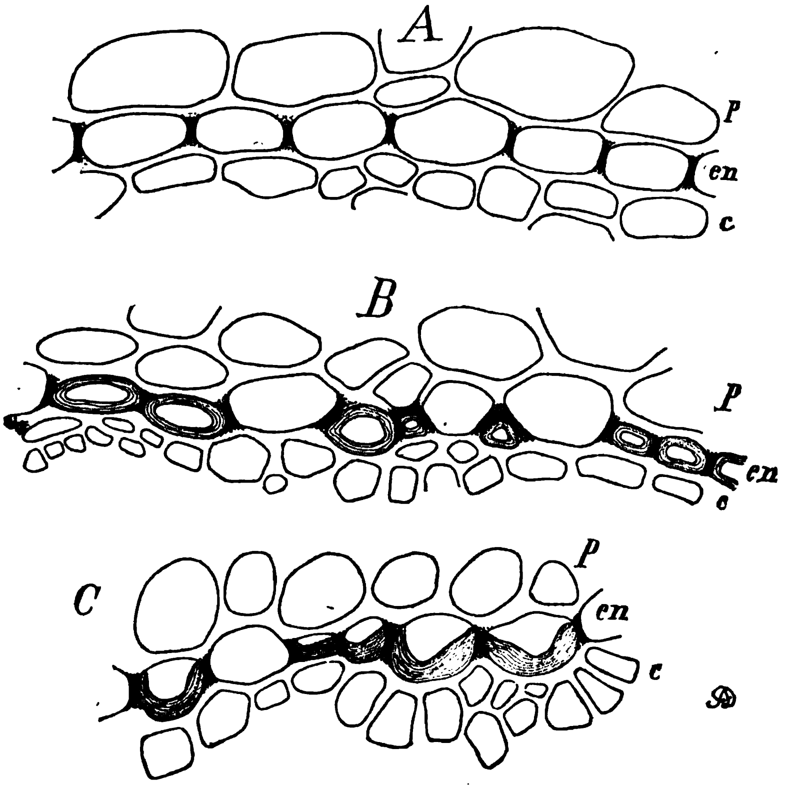
[**] L. c., p. 124.

From the foregoing it appears that the structure of the endodermis in the rhizoma of Cypripedium varies greatly, a rather remarkable fact if we remember that upon the constancy of the shape and the mode of thickening of the endodermis cells specific distinctions have been based, *e. g.*, Mexican and Honduras sarsaparilla. I might add that I collected root-stocks of Cypripedium with very much thickened endodermis cells in a boggy wood, while some plants collected in dry woods, and transplanted to a city yard several years since, as well as some specimens of the commercial drug, had thin-walled endodermis cells. This seems to be contrary to Schwendner's theory,* according to which plants growing in very dry places have thick-walled endodermis cells, and vice versa. The exception taken by Schwendner for hydrophilous plants exposed to temporary drought cannot be applied to my case.

### Note on "Insect Powder."†

THE Dalmatian Insect Flower, *Chrysanthemum cinerariæfolium* B. et. H., known also by its Dalmation name *buhach*, has been cultivated for several years past on a large scale in certain portions of California, the cultivators being Dalmatians who have settled there.

The best soil for this plant is loam with a large proportion of sand. This kind of soil is particularly suitable for sowing, but it should be well mixed with old dung. The seed itself is mixed with sand and distributed over the soil as uniformly as possible, after which the soil is raked to the depth of about half an inch, and then gently pressed by passing a roller over it. Until the plants spring up, the beds must be irrigated every evening, unless it rains. But great care must be taken not to overdo it, as the plant is very sensitive, throughout its whole life, towards undue moisture of the soil. After the plants have sprung up, they need not be watered more than twice a week. Weeds must be kept away until transplantation takes place, which occurs when the plants are about six inches high. It is then set out precisely like cabbage, about twenty inches distant from every neighbor, and afterwards needs no further attendance.



ENDODERMIS OF CYPRIPEDIUM PUBESCENS.

× 420, reduced to ⅔ of original.

*en*, Endodermis cells; the dark shade between the cells marks the strongly cutinized radial walls (the walls seen to be slightly cutinized, however, all around). *p*, Parenchyma toward surface of rhizoma. *c*, Tissue toward centre.

Buhach is a biennial [?] plant, therefore it flowers in the year subsequent to that of sowing. Just when the flowers are about to open, they must be cut off, as they contain the largest amount of essential oil in this condition. The cut flowers must be carefully guarded against dampness, and must be dried in the shade, never by exposure to the sun or to artificial heat. After the period of flowering is over, the plants are cut off four inches over the ground, reduced to powder, and this powder mixed with that of the flowers, in a proportion not exceeding one part of the former to two parts of the latter. [This is the statement made by the author of the work from which we quote. It is made in such a manner that it appears to be the regular process followed, there being no intention at all to utilize the flowers alone.] The finer the mixed powder of herb and flowers is, the more effective will it prove to be. If any one wishes to prepare the powder himself, and does not possess a suitable mill, he may use a mortar covered with leather. The quantity thus worked in a mortar should, however, not exceed about one pound, to avoid heating the powder. When the substance appears to be comminuted, it is transferred to a fine hair-sieve, and the refuse remaining on it put back in the mortar. It is very difficult to reduce the stems to powder in this manner, which—as the author naively but truly states—is not a serious disadvantage, as the flowers are the most valuable portion of the plant. Insect powder should be preserved in glass or metallic vessels, which should be closed airtight.

Insect powder may be used either in form of dry powder, or by fumigation, or in form of alcoholic extract, or mixed with water, or in form of infusion.

The work from which we quote advises to make the first-mentioned method of using insect powder cheaper by mixing it with flour, saw-dust, or wood-ashes, which do not interfere with its insecticidal powders. [Of course, this may be done by the user of the powder, provided the dilution is not carried too far.] The mixture ought to be made at least twenty-four hours before it is to be used, and it should meanwhile be kept in air-tight vessels. Experiments have been made which show that such mixture acquire greater efficacy by keeping. It was found, for instance, that a mixture of one part of insect powder and eleven parts of flour, applied immediately after being mixed, to certain caterpillars, was just sufficiently strong to kill them. But the same effect was produced by applying to them a mixture of one part of insect powder and twenty-two parts of flour which had been mixed twenty-four hours before. [The explanation of this may be that the volatile oil of the flowers probably becomes more thoroughly diffused through the mixture in the course of time.—ED. AM. DR.]

The employment of insect powder by way of fumigation is exceedingly effective, particularly in closed rooms, where the dense smoke produced by it, which is not at all disagreeable to human beings, soon kills all insects, particularly those having tender or soft bodies. This method is especially valuable for the purpose of killing mosquitoes in rooms. All that is necessary is to place a burning coal into a spoon or other receptacle, and to sprinkle insect powder upon it. In larger rooms, the spoon may be carried about, or several may be thus used in order to distribute the fumes properly. After a few minutes, every mosquito will be found dead; and, if the fumigation be kept up for about half an hour, the same fate will have overtaken also—according to the author—any fleas that might have been present. [He says nothing of bed-bugs, but it is certainly worth while to try the above method for getting rid of this troublesome pest, which is spreading gradually into houses of opulence and comfort, where such disgusting visitors had been previously unheard of.—ED. AM. DR.]

The third method of employment in form of alcoholic extract is the most advantageous for use in the fields and garden.

The principal drawback connected with the use of insect powder is this, that its effect, when applied in substance, is only certain when it comes in actual contact with soft-bodied insects. In the case of hard-bodied or haired insects it often produces only stupefaction for a time. This drawback is to a great extent removed by employing the alcoholic liquid extract, which may be prepared by percolation, or, according to the author, by macerating one pound of insect powder for four or five days with two pints of alcohol in a warm place, then separating the alcohol and adding one pint of glycerin. This liquid extract is to be diluted with water before use. For hard-bodied insects it may be diluted with twenty parts, for more sensitive insects with thirty to forty parts of water. If it is to be used out of doors, it is self-evident that it should not be applied while rain is threatening, nor during the hot part of the day. The best time is early in the morning while the dew is still on the ground or during cloudy days.

If a decoction of insect powder is desired, this may be readily made by pouring boiling water upon it and macerating, in a covered vessel, until cold.

In many cases a simple mixture of insect powder and water will be found quite effective. A good proportion is, according to the author, one-half ounce to two gallons. [This seems to be altogether too weak.]

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* "Die Schutzscheiden und ihre Verstärkungen," p. 57.; cf. Haberlandt, "Physiol. Pflanzenanatomie," p. 246.

† Abstract of a chapter on this subject in: "Die Tropische Agrikultur. Ein Handbuch für Pflanzer und Kaufleute." Von Heinrich Semler in San Francisco. 8vo. Wismar, 1886, Vol. I., pp. 207.

The decoction, however, is much more effective. It must be used as soon after preparation as possible, and at a time when its effect will not be interfered with by the condition of the atmosphere.

It should be stated that the majority of insects do not die immediately after having come in contact with insect powder or one of its preparations. They are at first only stupefied, but death usually ensues after a few hours and in some cases not until after several days.

### Test for Urethan.

A **very** pretty test for this new hypnotic is proposed by M. Jacquemin, in a note communicated by M. Berthelot to the Academie des Sciences. An aqueous solution of urethan (four grains to one ounce) may be used. To a little of this, in a test-tube, add an equal bulk of mercuric chloride solution, then, drop by drop, solution of potassa or soda. The first drops have no effect, but by-and-by a white gelatinous precipitate is formed, and when a certain point is reached, the contents of the test-tube become quite gelatinous when shaken up, the appearance of the viscous mixture resembling starch or tragacanth mucilage. If this be boiled, the precipitate dissolves almost to a clear liquid, and on cooling becomes milk-white, the precipitate very slowly settling to the bottom. If the test be reversed, the potassa being added to the urethan solution first, but not in excess, the mercuric chloride has no effect; if, however, more alkali be now added, the same result as before is experienced. If alkali be added in excess in the first instance, then mercuric chloride, a yellow precipitate of mercuric oxide forms and is at first redissolved, but as the mercuric solution continues to be added, the precipitate becomes permanent and the solution viscous. These tests are very interesting and well worth trial. As to the delicacy of the test, it is stated (*Brit. Med. Jour.*) that urethan was precipitated by mercuric salts in the proportion of 1.50 per 1,000. In order to detect urethan in weaker solutions, such as .00005 gramme per cubic centimeter, potassa was added and bichloride of mercury drop by drop. A yellow precipitate gradually formed, and again dissolved so long as urethan remained. The test has an application in detecting urethan in urine. Nitrate of mercury and acetate of mercury acted on urethan, in the presence of potassa, like the perchloride. These two salts precipitated urea, but precipitated urethan only in the presence of potassa. Natural urine, much diluted and treated with mercuric salt, deposited a white precipitate which became black on boiling. In order to extract urethan from urine, the latter is treated with ether, and then washed several times with water; the residue from the evaporation of ether is dissolved in very little water and treated as described. We may state that ammonia does not give the reaction, as it forms ammonio-chloride of mercury in every case. Potassa and soda are, however, effective. These alkalies split up urethan into ammonia, carbonic-acid gas, and alcohol, whereas ammonia decomposes it into alcohol and carbamide.—*Chem. and Drugg.*

### Thalleioquine Reaction for Quinine.

**One** of the most prominent and handsome reactions of quinine (and quinidine) is the well-known thalleioquine test, that is the magnificent green color (or precipitate) produced when chlorine water is first added to quinine or one of its salts, and a little ammonia is afterwards added. As chlorine water cannot be kept long in stock, and it is not always convenient to make it, bromine water may be used instead. But even this may be unavailable. Dr. Vulpius thought it, therefore, possible to utilize one of the several rapid methods of producing chlorine gas, the most convenient of which is that of pouring hydrochloric acid upon chlorate of potassium. He found this, indeed, to answer the purpose very well, provided certain precautions are carefully observed. It appears necessary, namely, that the acid should be used in excess and no trace of the chlorate of potassium remain undecomposed, before using the liquid for the test.

If the following method is followed, the test will always succeed. (Dr. Vulpius' statement is confirmed by Mr. Otto Kaspar, of Genf, the editor of the *Schweizer Wochenschrift für Pharm.*) Into a dry test-tube holding about 25 C.c. (nearly 1 fl. oz.) put 0.02 Gm. (or ab. ⅓ grain) of potassium chlorate, and 4 drops of officinal hydrochloric acid (the U. S. acid is a trifle stronger than the German, but answers perfectly). Next add 2 drops of water and warm in a water-bath or near a flame until the yellow color of the liquid ceases to become darker and no more gas is evolved, which will require only a few seconds. Now add 5 C.c. of cold water and shake thoroughly. The chlorine gas still contained in the cylinder will thereby become absorbed, and a sufficiently strong chlorine water will be produced.

The quinine salt in question is then tested as follows. Transfer 0.01 Gm. (⅙ grain) of it to the test-tube containing the chlorine water and shake well. Dilute with 5 C.c. more of water, and then add cautiously 1 C.c. of water of ammonia, so that the latter will float on top. At once there will be an intermediate layer of a deep-green color which will gradually extend downwards through the liquid.—*Pharm. Centralh.*

### The Effect of Shaking upon the Yield of Morphine when Using the Lime Method.

**Eugen Dieterich** recently read an interesting paper before the pharmaceutical section of the Convention of Naturalists and Physicians at Berlin, in which he showed the differences in morphine obtained from opium, when using Flückiger's test, according as the liquid was well shaken or left at rest.

He states that he macerated 96 Gm. of opium with 960 Gm. of water for 24 hours, and collected 12 portions of filtrate, each weighing 42.5 Gm. and representing 4 Gm. of opium each.

[The abstract of the paper before us does not state how the author arrives at the conclusion that 42.5 Gm. of the filtrate represent 4 Gm. of opium. From the paper of Messrs. Wrampelmeier and Meinert, published in our last volume, p. 203, it appears that the filtrate from a macerated mixture of opium and water, in the above given proportions, has the spec. grav. 1.01265–1.01270, say as a mean 1.01268. Consequently, the 42.5 Gm. of filtrate should measure 41.96 C.c. Messrs. Wrampelmeier and Meinert found that when 70 C.c. of water are macerated with 7 Gm. of opium, the 70 C.c. expand to only about 70.29 from the quantity of dissolved matter. Hence, the 960 Gm. (practically equal to 960 C.c.) of water taken by Dieterich should expand to only 963.98 C.c., and accordingly, 4 Gm. of opium would be represented, not by 42.5 Gm. (=41.96 C.c.) of filtrate, but by 40.67 Gm. (= 40.166 C.c.), which is the twenty-fourth part of 963.98. (Compare, however, the correspondence on p. 12 of this number.)—**Ed. Am. Dr.**]

Each of the 12 samples of filtrate thus taken by the author was mixed with 12 Gm. of alcohol, 10 of ether, and 1 of water of ammonia, and these were then arranged in pairs, so that there were *six* sets of samples of two vials each, which were treated in the following manner:

One set of vials was left at perfect rest, another was shaken every 4, another every 2 hours, another every hour, another every half-hour, and one was shaken continuously. Shaking could take place only during daytime, and the filtrates, even of the shaken samples, had subsequently to be left standing at rest.

The precipitates were separated by filtration every 12 hours, weighed, and ignited. The residue left on ignition, which consisted of carbonate of calcium, was calculated as bimeconate of calcium. This salt was believed to be more likely present than the simple meconate, as the former is more soluble, and the separation took place so slowly. But Dieterich expressly states that this is only an assumption.

The results obtained showed that the samples which were agitated most deposited the most morphine, but at the same time also the most lime.

Sample I., which was not shaken at all, had separated after the first 12 hours:

0.107 Gm. morphine, and
0.00148 Gm. calcium salt.

Sample III., which was shaken every 2 hours, had separated in the same time:

0.330 Gm. morphine, and
0.00296 Gm. calcium salt.

Sample VI., which was shaken continuously, yielded after the same lapse of time:

0.439 Gm. morphine, and
0.0207 Gm. calcium salt.

From these results the following fact is rendered evident:

If the prepared mixture is allowed to stand at rest, the precipitate separates slowly, deficient in quantity, and containing the smallest amount of lime. On the other hand, the precipitates form the more quickly, abundantly, and rich in lime the more the liquid has been shaken.

The question now arises, how may this possible discrepancy in yield, which may amount to as much as 3 per cent (according to Dieterich), be avoided? Certainly it will not do hereafter to allow the mixture to stand perfectly at rest. But again, constant shaking is impossible without special appliances. It will be advisable to give precise directions which may render the result more uniform.

Dieterich also calls attention to Dr. Geisler's admonition of several years ago, to avoid using as a precipitant of morphine a substance in which the alkaloid is not insoluble (meaning, among others, lime).—After *Pharm. Zeit.*

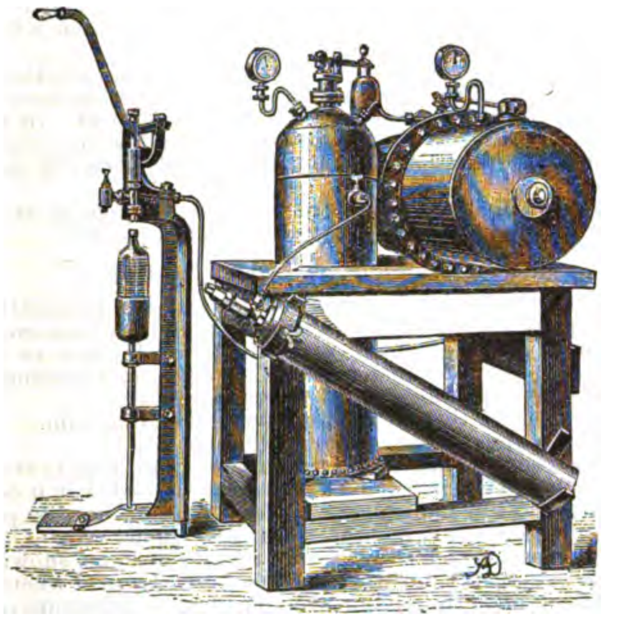
**Preparation of Pure, Crystallized Glucose.**—The process for obtaining pure, crystallized glucose, patented by Seyberlich and Trampedach (French Pat. 169,505) is as follows:

Starch is converted into sugar by treatment with pure nitric acid and the requisite amount of water. The acid is then neutralized with chalk, and the sugar solution concentrated *in vacuo*, to a density of 33–34 Baume. It is then allowed to crystallize, and the crystals separated from the mother-liquid by centrifugal dryers. The mother-liquid is freed from lime by sulphuric acid which, at the same time, sets free the nitric acid, and the resulting acid liquid, separated from the sulphate of calcium, may again be used for converting fresh starch into sugar.

## APPARATUS FOR UTILIZING LIQUID CARBONIC ACID.

THE apparatus here illustrated is recommended by Hasenoerl (*Zeitsch. d. Oester. Apoth. Vereins*) for the employment of liquid carbonic acid in the preparation of carbonated beverages.

It consists of an expansion vessel and a mixing cylinder. The former, which is connected with the receiver by a lead pipe, is provided above with a manometer as well as a safety valve. A second tube connects it with the mixing cylinder—the large cylindrical vessels represented as lying upon its side—which is also fitted with a manometer and safety valve, and has, besides, an opening for introducing the liquid to be charged with the gas, and a stirring arrangement to mix the contents. A pipe of block-tin, somewhat larger than the others, leads to the filling and corking apparatus, by means of which the carbonated liquid is drawn off into bottles. The mixing cylinder is also provided with a pet-cock for permitting the escape of atmospheric air which is expelled from the water when it is first charged with the gas.



Hasenoerl's carbonic acid apparatus.

The liquid carbonic acid is contained in the strong iron cylinder shown alongside of the table in an oblique condition. This is prepared by developing carbonic acid gas in the usual manner without pressure, drying it, and then compressing it in the reservoir by pumping it into it. The reservoir, which is of wrought iron and capable of standing a great pressure has, at one end, an inlet guarded in the interior by a valve which permits opening only inwards. After a little of the gas has been pumped in, a stop-cock at the other end is opened to let out the air. This is done several times, in order to make sure that all the air has been expelled. Then the gas is pumped in continuously, until the manometer indicates a certain pressure. During the process of filling, the cylinder is surrounded with ice.

## WASHING PRECIPITATES WITH THE LEAST POSSIBLE ACCESS OF AIR.

UPON a cylinder of suitable size, a well-ground glass plate is laid which must fit air-tight. The plate has three perforations. One (*a*) is intended to receive a stoppered funnel; another (*b*) carries a tube, bent over in its outside portion and entering a vial containing a solution of caustic potassa, a small pointed glass tube being fixed in the neck of the vial to establish communication with the air, and so adjusted that any air which will enter the apparatus is compelled to pass over the surface of the potash solution so as to be deprived of carbonic-acid gas. And the third orifice (*c*) is intended to hold a siphon-tube provided with a stop-cock (*d*) at the end. All three attachments are held in place by perforated rubber corks.

The precipitate having been produced by mixing the requisite solutions in the jar, the cover is adjusted and precipitate allowed to subside. The siphon-tube is then depressed sufficiently to permit the withdrawal of the supernatant liquid without disturbing the precipitate. [The end of the siphon-tube should be turned upwards, as this would greatly help to prevent disturbing the sediment.—ED. AM. DR.]. When enough liquid has been drawn off, the faucet at *d* is closed, and more liquid allowed to run in through the funnel. After the precipitate has again settled, the liquid is drawn off again, and this is repeated until the precipitate has been sufficiently washed. If the precipitate is to be freed from water as much as possible without being taken out of the cylinder, proceed as follows. Lift off the cover and attach to the inner end of the siphon-tube, by means of a rubber stopper, a porous clay cylinder of about the height of the precipitate. Then replace the cover. Connect the outer leg of the siphon absolutely air-tight with one neck of a Woulff's bottle, and the other neck with the air- or filter-pump and set this going slowly. After about one or two hours the liquid will have been aspirated over, being drawn through the porous cylinder which acts as a filtering medium, and the precipitate will usually be found as a cake about the cylinder, whence it may then be easily removed. Practical experience has shown that but traces of carbonic acid are absorbed by it, when operating in this manner.

The liquid used for washing the precipitate may also be used hot. In this case it is only necessary to use such utensils as are known to be able to stand the heat. This apparatus has been designed by Ad. Jolles.—*Zeit. anal. Chem.*, 1886, 369.

## CONTINUOUS WASHING APPARATUS.

THE apparatus here described has been devised by P. Raikow for the continuous washing of precipitates either with cold or hot water.

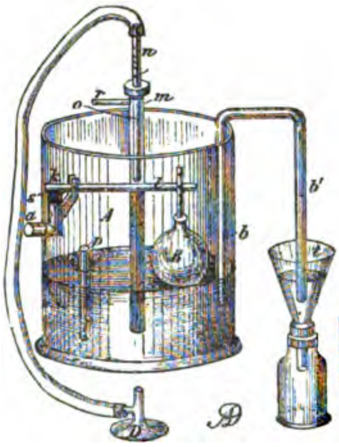
Water enters the vessel *A* through the pipe *a*, and is delivered to the filter through the tube *b*, *b'*. The level at which the water in the filter is wanted to stand is regulated in the following manner: A hollow glass-globe *B* is attached to the long arm of a lever *l*, while the short arm *k* is directly over a rubber plug on top of the inlet pipe *a*. Whenever the water in the reservoir *A* rises beyond a certain level, the empty flask is raised up, and the rubber plug is depressed upon the water-pipe, thus shutting off the supply, until the level of water fills again. If hot water is wanted, heat is supplied by means of a burner, and the temperature regulated by a thermo-regulator placed into the vessel. The gas reaches this through the tube *r* and, after passing the mercury valve in the lower part, reaches the burner through the tube *n*. The latter may be raised or lowered, according as a higher or lower temperature of the water is required. The little orifice at *o* serves for allowing the gas to pass to the burner to keep a small flame burning, when the main supply is shut off.—*Chem. Centralbl.*, No. 41.

### Cutting Glass Tubing.

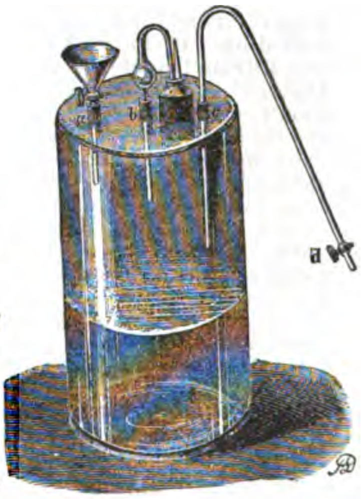
ERNST BECKMANN points out what is surely known to most of those of our readers who have experimented with the various methods heretofore published for cutting glass tubes, or other glass apparatus, that none of them is fully reliable. Indeed, many of them succeed only exceptionally. The before-mentioned writer, however, supplies a method which, he says, is almost infallible. It is not new, as he says, but is only little known.

Supposing a stout, hard glass tube (say, a combustion tube) is to be cut, proceed as follows:

Make a short mark with a file at the place where the tube is to be cut. At both sides of the scratch, at a distance of 1 or 2 millimetres, apply a layer of moistened filter paper, as described further on. Next heat the tube, turning it constantly about its axis, and using a Bunsen burner, or, better still, a glass-blower's pointed flame. The tube will then crack across exactly in the direction of the scratched mark without any lateral or marginal cracks or fissures, which is usually the case if the tube is first heated, and water be afterwards dropped upon the hot place as recommended by some.



Raikow's continuous washing apparatus.



Jolles' precipitate washer.

The paper layer is applied by taking strips of filter paper, of such size that the finished layer will be 1 to 2 millimetres ($\frac{1}{25}$ to $\frac{1}{12}$ inch) high and 2 to 4 centimetres (¾ to 1½ inches) broad. Fold them doubly, lengthwise, soak them in water, smoothen them out, and apply them as directed above, with the folded edge nearest the scratched mark, taking care that every succeeding fold is exactly over the preceding.

When tubes of larger or smaller diameter are to be cut, a larger or smaller layer of paper will be required.

By this method, the thinnest test-tubes, as well as the thickest glass tubes, may be neatly and uniformly cut off. The same may be done with beakers, flasks, and bell jars. If the surface of the glass apparatus is conical or of some other shape, the only alteration that will be required is in the method of applying and fastening the paper layers, for which no general directions can be given.—*Zeitsch. f. Anal. Chem.*, 1886, 530.

### Chloride of Gold and Caustic Potassa as a Reagent for Glucose.

C. Agostini has discovered a new reaction of glucose which, according to his statement, would be the most delicate of any so far known.

The reagent is in form of two solutions, *one* a solution of chloride of gold 1 in 1,000, and *the other*, a 20-per-cent solution of caustic potassa. The test is made by mixing in a test-tube five drops of the liquid to be examined (for instance, urine), five drops of the gold solution, and two drops of the solution of potassa. The mixture is then heated to boiling. If glucose was present in the aqueous solution, there will be seen, after cooling, a magnificent violet tint, more or less intense, according to the amount of glucose present. The sensitiveness of the reaction, according to the author, is such that it can detect one one-hundred thousandth part of glucose [in colorless liquids]. In urine, the color is that of red wine, likewise proportioned to the amount of glucose, and the sensitiveness such that it will show 0.1 per cent of glucose, which is sufficiently delicate.

From the examination of a large number of specimens of urine, the author concludes that, with the exception of albumin, none of the normal or abnormal constituents of urine interfere with the reaction. When albumin is present, however, this should be precipitated by boiling, and the test be applied to the filtered liquid.—*Journ. de Méd.* and *J. de Ph. et Chém.*

### Contribution to Opium Assay.

In a paper recently read by Eugen Dieterich (see above, page 4), the author showed that active agitation had much to do with increasing the yield of morphine from any given specimen of opium, when using the lime process. In another paper published in the *Pharm. Centralhalle* of Nov. 4th, the same author describes his method of assaying opium and preparations of opium in detail, but, as will be seen, he does not use the lime process.

#### I. *Assay of Opium.*

Macerate 6 Gm. of air-dry powdered opium with 60 parts of distilled water during twelve hours, occasionally agitating, then filter. Take 50 Gm. of the filtrate, mix them well with 2 cubic centimeters of normal solution of ammonia (the latter is prepared by diluting 170 Gm. of water of ammonia of 10 per cent, with distilled water to measure 1,000 C.c.) and filter immediately through a ready-prepared folded filter of 10 to 12 C.c. (2 to 2¼ inch.) diameter. Of this filtrate transfer 44.2 Gm., representing (according to Dieterich) 4 Gm. of opium, to an accurately tared, wide-mouthed Erlenmeyer flask, and add 10 Gm. of ether, grasp the flask at the neck, and agitate the contents for about one minute, in a horizontal, circular manner (not violently shaking up and down), so that the aqueous liquid will become completely saturated with ether.

Now add 4 C.c. of normal ammonia, again shake by circular agitation, and set aside for six hours at the ordinary temperature. At the end of this time, transfer the ethereal layer as completely as possible upon a plainly-folded filter of 8 Cm. diameter, add to the residuary opium solution another portion of 10 Gm. of ether, agitate gently a few seconds, and transfer the ether layer again upon the filter.

When it has run through, pour on the water solution without paying any attention to the small crystals adhering to the walls, and then rinse the flask twice successively with 5 C.c. of water previously saturated with ether.

Allow the flask to drain out completely upon the filter, and also the latter to drain completely, then dry both at 100° C. (212° F.), transfer the contents of the filter, by means of a small brush, into the flask, and dry to a constant weight.

When mixing the ether with the liquid extract of opium (which is freed from most of the narcotin by the ammonia), violent agitation must be avoided for the reason that both layers become very easily emulsionized, after which they separate only with difficulty. When the second portion of ammonia (4 C.c.) is added, there will be produced, if the liquid was not fully saturated with ether, a separation of narcotin. But on continuing the circular agitation, this will again disappear, being taken up by the ether.

As the ethereal solution leaves some narcotin in the filter, it would introduce an error to weigh the filter in addition to the flask. Nor is it necessary, as the well-developed crystals of morphine can readily be detached from the paper.

The author quotes the results obtained by this method upon five different samples of opium, each being assayed a varying number of times. The results were as follows:

1. Smyrna I.: 12.20—12.32—12.47—12.12—12.20—12.51—12.40—12.41.
2. Smyrna II.: 13.60—13 77.
3. Smyrna III : 16.15—16.47—16.29—16.40.
4. Guevé: 11.55—11.88—11.95—11.97.
5. Saloniki: 16.10—16.25—16.03—15.95.

Each yield of morphine was examined for lime and nicotin, and found free therefrom. Nor was it possible to find the slightest traces of morphine in the nicotin which had been extracted by the first neutralization with ammonia. The figures, in each case, agree remarkably well, and the whole process ran its course smoothly and without a hitch.

#### II. *Assay of Extract of Opium.*

Dissolve 3 Gm. of extract of opium in 42 Gm. of water, allow to stand one hour, then mix with 2 C.c. of normal ammonia (see above), and filter through a ready prepared filter, as directed in No. I.

31.7 Gm. of the filtrate represent 2 Gm. of extract.

This filtrate is treated precisely as directed under No. I., being first mixed with 10 Gm. of ether, then with 4 C.c. of normal ammonia, etc., etc.

Special experiments were made to ascertain whether a longer standing at the end of the operation, or an increase of the ammonia would produce a better yield. In the former case, no particular advantage could be discovered, and an increase of ammonia was found positively injurious.

The yield of morphine from an extract kept in stock varied in ten different assays from 22.80 to 23.20%.

#### III. *Assay of Tinctures of Opium.*

50 Gm. of tincture of opium [any liquid preparation of opium would come under this head here] are evaporated to one-half, then made up with distilled water to the former weight, mixed with 2 C.c. of normal ammonia, and filtered through a ready-prepared filter.

44.2 Gm. of this filtrate represent 4 Gm. of opium.

This is then treated as directed under No. I.

The process applied to a tincture of opium kept in stock (which had deposited some sediment) showed that it contained 1.16% of morphine. Another tincture, freshly prepared from the opium mentioned under No. I. as "Smyrna I." yielded 1.20% to 1.22% of morphine, showing that practically identical results were obtained whether working upon the opium itself or upon the tincture prepared from it.

#### IV. *Experiments with Normal Potassa and Titration.*

The author wanted to ascertain whether solution of potassa would not do the same services as ammonia. It was found that 3 C.c. of normal solution of potassa did the same amount of work as 4 C.c. of normal ammonia. Yet the results were not as satisfactory as when ammonia was used.

The attempt to assay the extracted opium by titration turned out to be a failure.

#### V. *Summary of the Advantages of the Above-described Process.*

According to Dieterich, the following may be enumerated as advantages:

1. The process occupies only eighteen hours in the case of opium itself, and seven hours in the case of the tincture, without counting the time required for drying the morphine.

[The process of the U. S. Pharm. occupies considerably less time.—Ed. Am. Dr.]

2. The simplicity of the process, and its independence from the amount of agitation.
3. A sufficiently sharp separation of constituents.
4. Uniformity in results.
5. Almost total extraction of morphine.

Regarding this important point, the author says:

It has been stated above that no morphine could be detected in the liquid remaining after the separation of morphine. This was ascertained by treating the residuary extract with lime-water and afterwards mixing with chloride of ammonium. Since the liquid finally left behind, when using Flückiger's process, was still found to contain 0.9 per cent of morphine, the following two experiments were made to prove the accuracy of the new method:

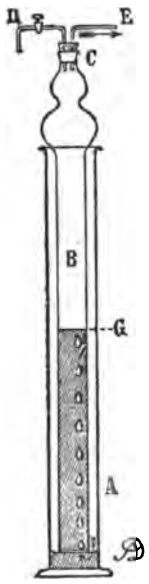
0.5 Gm. of morphine dried at 100° C. (212° F.) was dissolved in 1.7 C.c. of normal sulphuric acid and 42 Gm. of water. The solution was mixed with 10 Gm. of ether, just as in assaying opium, then 4 C.c. of normal ammonia were added, and the liquid set aside for six hours. The yield of morphine finally obtained was, in two trials, 95.00 and 95.70, respectively, of the original morphine used, which is quite close.

Again, a portion of the "Smyrna No. I." was taken in operation, 50 Cm. of liquid extract obtained as directed under I., treated with 2 C.c. of normal ammonia, and filtered. Every 22.1 Gm. of the filtrate contained 2 Gm. of opium of known percentage of morphine, namely 12.5%. To this portion of the filtrate, 0.25 Gm. of pure morphine, dissolved in the requisite quantity of acid and water, were added. On treating it now with ether and ammonia, and setting aside for six hours, the following yields of morphine were obtained: 12.57 and 12.42%. While the result is very good, it is still evident that minute quantities of morphine remain in the mother liquid.

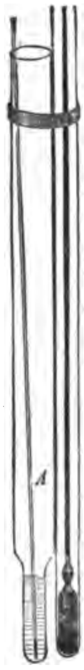
### SUCTION APPARATUS.

Most of the aspirators or suction apparatuses, such as the usual filter pumps, have no provision against a sudden release of resistance, in consequence of which they will often act with greatly increased force and rapidity, causing not unfrequently the rupture of a filter. A contrivance to do away with this drawback has been devised by Dr. F. Molnár, which is here illustrated.

The apparatus consists of two glass cylinders, an external wider one *A*, provided with a foot, and an internal narrower one, of the shape shown in the cut. The outer one has a diameter of about 4 Cm., the inner one of about 3 Cm. The neck of the inner cylinder is closed with a doubly-perforated cork, bearing two bent glass tubes *D* and *E*, one of which is provided with a glass stopper. The other is connected with the filter pump.



Molnár's suction regulator.



Siwoloboff's apparatus.

When using the apparatus, the outer cylinder is charged with water to a height proportionate to produce the desired tension or pressure. When the filter pump begins to act, the water will rise in *B* until the level in *A* will have sunk as far as the lower orifice of the inner cylinder, whereupon a little air will enter, which will restore the equilibrium. The glass faucet is for the purpose of regulating the rate of aspiration or exhaustion.

The author adds that he used the apparatus chiefly for regulating the current of oxygen gas passing through combustion tubes, and that, for such purposes, he found cylinders of a height of 35 Cm. the most suitable.—*Rep. d. Anal. Chem.*, 1886, No. 42.

### DETERMINING THE BOILING POINT OF A SMALL QUANTITY OF A LIQUID.

When only very small quantities of a liquid are available, and the boiling point is to be determined, the following method, proposed by A. Siwoloboff, may be used with advantage:

Take a glass tube and draw it out, and close it at the end as shown in the cut. Also take a very small capillary glass tube and prepare one end of it so that the bore is stopped up by fusion a very short distance from the end. This is done by fusing a longer capillary tube at any convenient place, and then cutting it off just beyond this point. The liquid to be examined, which only need be a drop or two, is introduced into the tube A, and the capillary glass tube placed into it, so that a small bubble of air remains confined in the small cavity near the end. An accurate thermometer is fastened to the tube, and the two are immersed together into glycerin or some other liquid used for raising the temperature.

When the liquid in the tube is approaching the boiling point, small solitary bubbles of air are evolved from the bottom of the capillary tube. As the temperature rises, these increase rapidly in number, and when the liquid boils, form a continuous thread of small bubbles of vapor. In this manner the boiling of the liquid may be correctly observed and also properly regulated. When the boiling is in active process, the temperature is read off.—*Ber. d. Deutsch. Chem. Ges.*, 1886, 795.

### APPARATUS FOR COATING PAPER, FABRICS, ETC.

The apparatus here described has been originally designed for the preparation of water-proof paper, but it may be employed also for many other purposes, for instance, the manufacture of antiseptic dressings, such as bichloride or other gauzes, also for making wax or paraffin paper, parchment paper, etc., etc.

The paper or fabric to be impregnated is wound upon a reel *A*, from which it is made to pass over the rollers *F*, *a*, and *a*; the latter two of which are below the level of the liquid with which the paper or fabric is to be treated, and then it is made to pass between two rollers *c*, *c*, where the excess of liquid is pressed out or wiped off. From there it passes between two blowers *R*, *R*, which convey a blast of either cold or hot air, according to the nature of the material with which the fabric is charged. In the case of wax or paraffin, a current of cold air is required; in the case of fabrics impregnated with aqueous solutions, hot air will be necessary, and it may even be necessary to pass the fabric between heated rollers. Finally, it is wound upon the reel *K*. The reservoir *B*, containing the liquid, may be heated by steam if the nature of the material requiries it.—*Dingl. Polyt. Journ.*, 1886, 464.

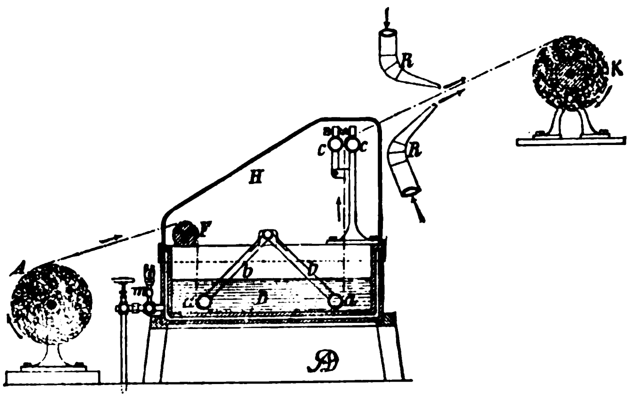
### Evaporation and Incineration by Means of Leidenfrost's Drop.

When a drop of water is let fall on a metallic surface heated above 340° up to red heat, the drop will roll off it without apparently coming in contact with it, or, if the surface had the proper shape, the drop will roll about in it, gradually becoming smaller, from the rapid evaporation of the exterior layers, but it will constantly remain surrounded by a layer of air or vapor at high tension, until it is completely dissipated. If the temperature of the metallic surface falls, the drop will eventually come in actual contact with it, when it will instantly and violently boil and be dissipated.

The above phenomenon is of course well known, and particularly so to every housekeeper, who tests the proper temperature of her sad-iron by letting a drop of water fall upon it. A drop of water, under the conditions above described, is known in physics under the title of "Leidenfrost's drop"; or it is said to have assumed the spheroidal condition. Liquids other than water assume the spheroidal shape at higher or lower temperatures, according as their boiling points are higher or lower.

The quiet evaporation from the surface of such drops was utilized some time ago by E. Bohlig, for ascertaining the dry residue of various kinds of liquids. If care is taken to keep the platinum or other metallic vessel at a uniform temperature, and the liquid is admitted to it in well-regulated drops, a large quantity of it may be evaporated without any risk of loss by spattering, such as frequently happens when boiling a liquid down.

Theodore Salzer now draws attention to the fact that the principle may also be applied in determining the incombustible residue (that is, the ash) of any solid organic substances, which melt before they are decomposed or volatilized. The drawback connected with the evaporation of liquids by this method, viz., that it requires considerable time, does not apply in this case.



Apparatus for coating fabrics.

Supposing *oxalic acid* is to be examined for its percentage of inorganic impurities or ash. Then either the whole of the acid, or portions of it, are put into a platinum capsule raised to a low red heat. The acid is at once converted into a rolling drop which evaporates rapidly, and leaves behind all non-volatile inorganic matters in form of a loose pellet.

As the drops are constantly surrounded by air, the incineration of the residue is very complete. The drop retains its shape and rolling motion, even if the escaping gases take fire, for instance, in the case of succinic acid. It is easy to avoid spattering, which will happen if the capsule is too hot when the drop is introduced.—*Pharm. Centralh.*

## QUERIES & ANSWERS.

*Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer, for the information of the editor, but not for publication.*

No. 1,828.—**Iodoform Prepared by Electrolysis** (M. S. W.).

The preparation of iodoform by electrolysis is carried on in the "Chemische Fabrik auf Aktien, vormals E. Schering," at Berlin, but is protected by patent. The outline of the process, so far as we know, is the following:

50 parts of iodide of potassium are dissolved in 300 parts of water, and the solution mixed with 30 parts of alcohol of 96%. A constant stream of carbonic acid gas is passed through the liquid, and at the same time the liquid is decomposed by electrolysis, iodoform being separated at one of the anodes in a crystalline condition. In place of alcohol, acetone or aldehyde may be used. If a solution of iodide of potassium in 20% alcohol is employed, larger crystals are obtained.

The same method is said to be applicable to the preparation of bromoform or chloroform. But in this case the current of carbonic acid gas is unnecessary.

No. 1,829.—**To Render Windows Opaque** (J. S. & Co.).

A coarse method of "blinding" a window, or rendering the panes of glass impervious to sight, though not impervious to light, is to paint it with a thin coat of paint. A much better method, however, and one which will render the glass apparently of the same appearance as if it had been ground or "sand-blasted," is the following:

Dissolve 50 parts of sandarac and 30 parts of mastix in 500 parts of ether, and add to the solution such an amount of benzin that a portion of the liquid, when spread upon glass, will leave, after drying, a dull uniform coat, causing the glass to appear as if ground. When the solution is to be applied, it is advisable that the window be laid in a horizontal position. If this is not possible, the liquid may be applied by a spray apparatus, taking care that no more is applied at a time than can dry at once. Finally, where a sufficient coat has been produced, a spray of benzin may be passed over it to give it more uniformity.

No. 1,830.—**Removal of Nitrogen Compounds from Caustic Potassa or Soda.** (Nitrogen).

When caustic potassa or caustic soda is to be cast in form of sticks, it is quite a common practice to add to the melted mass a little nitrate of potassium or nitrate of sodium, which have the effect of oxidizing the small quantity of organic substance that may be present, and cause the product to have a handsome white color.

This nitrogen is objectionable when the alkalies are to be used as tests, for instance, in Kjeldahl's nitrogen determination or in the examination of water for nitrogen. According to E. Reichardt, the whole of the nitrogen may be removed by melting the respective caustic alkali, best in a silver crucible, then adding a little powdered zinc, and stirring. From time to time a small portion is removed, moistened with water and tested for nitrates by means of brucine (dissolved in sulphuric acid). When this reagent ceases to become tinted red, the alkali may be regarded as free from nitrogen.

Caustic alkali should always be examined for nitrates or nitrites before it is used for analytical purposes.

No. 1,831.—**Preserving Fruit-Juices, Malt Liquors, etc., in Bottles** (J. B.).

The fundamental principle of the preservation of any organic substance liable to decomposition is based upon an absolute exclusion of micro-organisms (fungi, bacteria, etc.). The old method of Appert, or rather Pasteur's process, will be found, in practice, the most serviceable, when the addition of special preservative agents is not desired or permitted. The vessels in which the liquids are to be preserved must, of course, be thoroughly cleansed before being filled. They are then placed into a tank containing water which must be gradually heated to a temperature varying according to the nature of the contents, but which should reach the boiling point of the water if the contents of the vessels are not injured thereby. The necks of the latter should be closed during the heating by a wad of cotton. The requisite corks should be prepared by boiling them in water containing about six per cent of salicylic acid.

The boiling extracts from the cork a certain bitter substance, while the salicylic acid helps to destroy the vitality of germs. When the heat has been kept up for some time—care being taken to see that the vessels are filled to within a short distance of the cork, some time before the latter is inserted—the bottles or vessels are removed, and the corks carefully inserted the moment the wad is withdrawn. In place of salicylic acid, a solution of bisulphite of sodium may be used for soaking the corks. Immediately before use, each cork is washed in fresh, cold water.

No. 1,832.—**Millon's Reagent** (Meta).

This reagent is used as a delicate test for albumen, albumenoids, urea, and certain other organic substances. It is not usually kept in stock ready-made, but when the reaction is to be made, the several component parts are used in succession. Supposing we have an aqueous liquid containing albumen. First add a solution of acid nitrate of mercury, in rather large quantity, and heat to boiling. Then add an equally large quantity of a solution of nitrite of potassium (which should be as free from carbonate as possible). The liquid, as well as the precipitate, will usually at once assume a red color, but may not do so until it is heated to boiling, when it will become red if albumen was present. The precipitate has generally a darker tint than the solution, and sometimes the precipitate alone is colored.

If the reagent is to be prepared for keeping, dissolve 10 Gm. of mercury, in a flask, with 25 Gm. of nitric acid (sp. Gr. 1.185) previously diluted with 25 Gm. of water, putting the flask in a lukewarm place and agitating occasionally. On the other hand, dissolve 10 Gm. of mercury in 22 Gm. of nitric acid (spec. gr. 1.250 to 1.300) with the aid of heat. Finally mix both solutions.

Another method, recommended by Krukenberg, is the following:

Mix a cold saturated aqueous solution of mercuric chloride with so much nitrate of silver as may be required to leave a little of the mercury salt undecomposed. The filtrate separated from the chloride of silver, and which should be preserved in a glass-stoppered vial, does not, by itself, give Millon's reaction, as it only contains mercuric nitrate, but requires to be mixed, at the time of use, with a few drops of a one-per-cent-solution of nitrite of sodium (or potassium) which should be kept on hand for this purpose. When using the reagent, it is best to boil the liquid which is to be examined, at first only with the solution of mercuric nitrate, of which a copious quantity should be added, and to add afterwards the nitrite solution. Krukenberg recommends to add only a little of the latter. We find this likewise preferable to the direction usually given, viz.: to add both in considerable quantity.

No. 1,833.—**Syrup of Coffee** (M. A.).

Syrup of coffee is an excellent vehicle for many nauseous or bitter medicines. It is an excellent covering of the bitter taste of quinine, for instance. Moreover, it may often be used as a corrigent in elixirs or mixtures containing acrid or bitter resins. The New York and Brooklyn Formulary and the proposed National Formulary make repeated use of it for this purpose. The formula at present accepted by the Committee is the following:

| | |
|---|---|
| Coffee, roasted and finely ground | 8 av. oz. |
| Sugar | 24 av. oz. |
| Boiling Water | q. s. |

Pour boiling water, in successive portions, upon the coffee packed tightly in a percolator, until 16 fl. oz. of percolate are obtained. In this dissolve the sugar by agitation, without heat.

It is recommended that a mixture of equal parts of the commercial varieties of coffee, known as Mocha and Java, be employed for this purpose. The successive portions of water should be added slowly, the previous one being allowed to disappear from the surface; and the percolator should be kept carefully covered.

Our correspondent states that he has recently bought some of the best "Java" coffee, which appears to have, when served as a beverage, a peculiar musky odor. He has not been able to observe anything out of the way on the beans, nor did he notice the odor until the coffee was served.

Regarding this we would say that coffee is undoubtedly one of the most delicate substances known regarding capacity for taking up foreign odors. In this respect it is exceeded only by butter and other bland odorless fats. Though this fact is well known in commerce, and special precautions are taken by shippers of coffee to prevent it acquiring foreign flavors from other portions of a cargo, yet many cargoes are stowed in contravention of the rule. Sometimes hides are carried in the same hold as the coffee; in this case the odor of the former will remain adherent to the beans, even after roasting, though it requires an experienced judge to detect it. Bilge-water also often injures the flavor of coffee. Very fine noses can even distinguish coffee that has been kept in casks made of certain kinds of otherwise unobjectionable wood. The musky odor which our correspondent has detected in his coffee has probably got into it by having been exposed to an atmosphere containing a musky taint.

No. 1,834.—**How to Detect Chloral in the Urine and other Complex Organic Mixtures** (Student).

Chloral appears in the urine either as such, particularly when large quantities have been taken, or as urochloralic acid, which crystallizes in silky needles, is lævogyre, reduces alkaline copper solution, and is soluble in water and alcohol. This acid appears in notable quantity, particularly after a rather long-continued use of chloral, but free chloral is always found alongside of it. The fact that the urine, which contains urochloralic acid, reduces Fehling's solution might be mistaken for a proof of the presence of sugar.

Chloral may be distilled with the vapor of water or alcohol without decomposition. On heating it with an alkali, it splits into chloroform and a formate of the alkali. Upon these reactions is based a simple method of detecting and estimating it.

Mix the urine with a little alcohol (to make the liquid boil more briskly), then render it neutral, if necessary, by carbonate of magnesium, or tartaric acid, as the case may be, and distil until only a syrupy residue remains. Any chloral present is now contained in the distillate. Mix the latter with calcined magnesia and heat it under an upright condenser for about half an hour, whereby the chloral will be converted into chloroform and formate of magnesium. Instead of magnesia, another alkali may be used, but magnesia is, on the whole, preferable. The detection of chloroform is now accomplished by mixing a portion of the distillate with alcoholic solution of caustic soda, then adding a drop of aniline and gently heating, when the penetrating, disagreeable odor of isonitril will make its appearance. As all the magnesia which has not combined with formic acid is still present as an undissolved residue in the flask after the distillation, the contents of the latter may be filtered and the residue on the filter washed, so that all the soluble magnesium salt is in the united filtrate and washings. By determining the quantity of magnesium present, as pyrophosphate of magnesium, an approximate determination of the chloral originally present is accomplished. 100 parts of pyrophosphate of magnesium thus obtained correspond to 298.2 parts of chloral hydrate.

If chloral is present as such in animal liquids, it may also be separated by shaking it out, in neutral solution, with absolute ether, or with acetic ether. Petroleum ether, chloroform, or benzin will not answer the purpose. In order to detect 0.005 Gm. ($\frac{1}{12}$ grain) of chloral hydrate in 75 C.c. (about 2½ fl. oz.) of liquid, it suffices to extract it twice with ether. If only 0.001 Gm. ($\frac{1}{64}$ gr.) is present, no amount of shaking with ether will suffice for extraction.

No. 1,835.—**Fruit Ethers** (S.).

This correspondent wants information regarding the preparation of fruit ethers on a large scale. He has given us information regarding the extent of literature he has consulted, but this does not go far enough. We will, in the first place, point out to him better sources of information:

1. "Die Fabrikation der Aether und Grundessenzen." Von Dr. Theod. Horatius. 8vo, Wien (Hartleben), 1881. This work may be had at any of the large German book importers. It is quite thorough and complete, and contains illustrations. Detailed processes are given for the several fruit ethers, as well as for compound ethers.

In our volume for 1882 (NEW REMEDIES, 1882, p. 118), we gave an illustration of an apparatus recommended by Dr. Horatius for the purpose of making such ethers. But the arrangement is to be understood as merely schematic; the different parts can be constructed or shaped according to the special requirements of any particular case.

2. "Chemisch-technisches Universal-Receptbuch, enthaltend das ganze Wissen der warmen und kalten Destillation." Von C. Hofmann. 8vo, Berlin, 1880 (2 vols.). This also contains very useful information. The fruit ethers, etc., are treated of in Vol. I., p. 371, etc.

3. Muspratt's "Theoretische, praktische und analytische Chemie." (4th edition, edited by Stohmann & Kerl, just commenced.) Vol. I., pp. 36–47. This work may also be had (by subscribing) from the German importing bookdealers.

Regarding butyric acid, we believe that our correspondent would do much better to purchase it than to make it himself. It does not cost very much when purchased by the pound or in larger quantities. Nevertheless, we will indicate a process by which it may be prepared without starting from milk, in which latter case it would be necessary to await the tedious change of lactic into butyric acids. The process is the following (after Fitz; see *Ber. d. Deutsch. Chem. Ges.*, 11, 52).

Mix 100 Gm. of potato starch with two liters of water at 40° C. (104° F.); then add 0.1 Gm. of phosphate of potassium, 0.02 Gm. sulphate of magnesium, 1 Gm. chloride of ammonium, and 50 Gm. carbonate of calcium, together with a trace of the bacillus subtilis, which latter is obtained by taking a handful of ordinary hay, drawing it several times through ¼ liter of water, then straining and boiling the liquid for five minutes. The whole mixture is set aside, at 40° C. (104° F.) for ten days, when there will be produced in it

1 Gm. of alcohol,
34.7 Gm. of butyric acid,
5.1 Gm. of acetic acid,
0.33 Gm. of succinic acid,

the acids being combined with calcium.

The salts having been obtained by filtering the liquid and evaporating it, it is only necessary to decompose them with hydrochloric acid, and to receive the distillate boiling between 150° and 170° C., which may then be further fractioned.

*Butyric Ether*, at least that which is so called in commerce, but which is not pure, as it contains compound ethers of higher acids, is obtained by heating two parts of butyric acid with two parts of alcohol and one part of sulphuric acid, for a few hours to a temperature of 176° F. (best under an an upright condenser), and then pouring the mixture into water, when the ether will separate as an oily layer. This is washed, dehydrated with calcium chloride, and rectified by distillation. It forms a colorless mobile liquid of sp. gr. 0.900, and boils at 250° F.

There is another method of preparing it, viz.: by starting from a butyrate. This is, however, said to yield a less pleasant product. We have no experience with it, and therefore can give no opinion on this part of the subject.

Our correspondent refers to the "Proceed. Am. Ph. Assoc.," vol. 23, p. 371, for a process for butyric acid, and says this would take too long for his purposes. We would, however, point out that the butyric acid obtained from St. John's bread is not identical with that obtained from butter, or from milk or starch. The former acid (from St. John's bread) is that known in chemistry as isobutyric acid, having the same ultimate composition as the latter, but differing in some of its properties. It has a more agreeable odor that the normal acid (this difference is not so marked in the ethers), and its salts are more soluble.

No. 1,836.—**Artifically Colored Red Wines** (Dr. W. O. F. and A. R.).

The color of claret wine or burgundy may be imitated by means of several aniline colors. Formerly, the only kind available or used for this purpose was fuchsine, or hydrochlorate of rosaniline, which was often assisted in its tinctorial effect by some other modifying agents. At one time, most of the aniline colors were made with the intervention of certain poisonous agents, such as arsenic acid, and, though the coloring matter may not have been used in large quantity, yet the known presence of poison, even in traces, justified the crusade that was waged against them. Subsequently, these same coloring matters were made without the aid of poisonous agents, and, at present, it happens probably but rarely that a poisonous fuchsine is used for such a purpose. Of course, there is another feature connected with this business, namely, the fraud and deception perpetrated by passing off an artificially colored wine for a natural one. But we will leave this side of the question out of consideration here, merely remarking that the practice ought to be condemned under all circumstances.

How to detect fuchsine in red wine is outlined by the U. S. Pharm. under "Vinum Rubrum" as follows: If 50 C.c. of red wine be treated with a slight excess of water of ammonia, the liquid should acquire a green or brownish-green color: if it be then well shaken with 25 C.c. of ether, the greater portion of the ethereal layer removed and evaporated in a porcelain capsule with excess of acetic acid and a few fibres of uncolored silk, the latter should not acquire a crimson or violet color (absence of aniline colors)." This test indicates fuchsine, but is no longer sufficient for detecting certain other red aniline colors which are now even more in use than fuchsine is.

Among the coloring matters derived from coal tar there is one which has received the name *sulpho-fuchsine* (or acid fuchsine, acid rubin, "fuchsine S."). This is prepared (under a patent) from rosaniline and fuming sulphuric acid, whereby an acid is produced which has, temporarily, the name *rosaniline-sulphonic acid*, its true chemical constitution not being yet fully understood. This acid is combined with sodium and it is this salt which is known as sulpho-fuchsine. The latter has a purer claret color than fuchsine, but does not stand dilution as much as the latter. It is very commonly used for coloring wines, and may be detected in the following manner:

Heat 10 C.c. of the suspected wine with a few grains of a mixture of acetate of mercury and calcined magnesia to boiling, filter, and treat the colorless filtrate with a little acid, which will cause a red color if sulpho-fuchsine was present.

Or, shake 50 C.c. of the wine with 5 Gm. of dioxide of lead or peroxide of manganese, filter, and acidulate the filtrate. If sulpho-fuchsine was present, it will turn red; if vegetable, or aniline colors from the so-called azo-series were present (the latter are, however, but rarely used for such purposes), the liquid will remain colorless.

In explanation of the reactions above given, it should be added, that rosaniline is a colorless base. When fuchsine (which is the hydrochlorate of this base) is treated with ammonia, the latter unites with the hydrochloric acid, setting free the base, and in consequence thereof the whole liquid becomes colorless. The separated rosaniline, being soluble in ether, is removed from the mixture by agitation with ether, and upon evaporation will leave it behind. On now introducing a few shreds of uncolored silk (or other animal fibre), and acidulating, the tinctorial substance is restored and the animal fibre dyed red.

It is usual in ordinary technical language and for brevity's sake, to say that fuchsine is the hydrochlorate of rosaniline. In reality, however, it consists of the hydrochlorate of rosaniline and para-rosaniline, the exact relation of which to each other is still under discussion.

No. 1,837.—**Black Coating for Black-boards** (F. S.).

Black-boards, such as are used for writing or drawing upon with chalk before an audience, should have a dead black, not a glossy surface, and should be very finely granular, so that the surface will readily take the chalk.

A very superior black-board, unlimited in size, except by the available wall-space, may be prepared by having the wall very carefully gone over by a plasterer, so as to make it perfectly level, and to have a coat of so-called hard finish applied to it. The desired amount of surface intended for the black-board itself may then be surrounded by a suitable frame. Upon the inclosed surface, then, some preparation like the following is applied with a brush, care being taken that this is done very evenly.

| | |
|---|---|
| 1. Lamp-black | 9 parts. |
| Camphor | 8 " |
| Shellac | 20 " |
| Alcohol | 100 " |

Dissolve the shellac and camphor in the alcohol, and mix the solution intimately with the lamp-black. Apply it quickly and uniformly with a flat brush. A little ether may also be added, but it is not necessary.

| | |
|---|---|
| 2. Lamp-black | 20 parts. |
| Shellac | 30 " |
| Sandarac | 30 " |
| Ultramarine | 3 " |
| Ether | 1 part. |
| Alcohol | 400 parts. |

3. The following is recommended by Gintl:

Dissolve 200 parts of copal in 400 parts of ether; then add a solution of 1,000 parts of shellac and 500 parts of sandarac in 3,500 parts of 90% alcohol; with this mix 150 parts of lampblack, 50 parts of ultramarine, 50 parts of Venice turpentine, and 1,000 parts of *finely* powdered emery. Apply the mixture to the wall-surface carefully, and (if it can be done without doing any injury) set fire to it, which is not very risky as the fire may be put out without difficulty. As soon as the flame has died out, a second coat is applied, which is, however, not ignited, but allowed to dry spontaneously. The surface is then ground with fine sandpaper and carefully washed off with water.

No. 1,838.—**Putz Pomade** (H. B., Brooklyn, N. Y.).

"Is the formula for 'Putz Powder' in the November number similar in make-up to Vogt's 'Putz Pomade;' if so, what is the fatty basis of the powder; if *not*, what is the composition of the pomade as made by this firm?"

It is out of our power to answer this question, as we have no personal acquaintance with the pomade. Perhaps some of our readers may know. If the composition of the pomade—as is likely to be the case—is a secret of the firm, it would be hardly fair to publish it broadcast without authority from them.

No. 1,839.—**"Warner's Safe Kidney Cure"** (Subscriber).

"Please give me the recipe of Warner's Safe Kidney Cure? If you have published it, please give me the back number of Journal."

We have not published it, and do not know the formula

No. 1,840.—**Hospital Formulary** (E. P. M. C., Kansas).

"I have the August and September numbers of the AMERICAN DRUGGIST, containg 'Selections from the Revised Hospital Formulary,' etc., of New York. I wish to be informed how many numbers will be required to conclude the whole of the article, and what month it will end, as I wish to obtain the set?"

The article will be continued as rapidly as we can find space for it in consecutive numbers, but we are unable to say, in advance, in what number it will be concluded.

No. 1,841.—**Troublesome Prescription** (E. C. S.).

"I received a prescription recently, as follows:

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|---|---|
| " Sodæ Bicarb | ʒ v. |
| Spt. Menth. Pip | ℥ iss. |
| Tr. Capsici | ʒ ij. |
| Spt. Frumenti | ad ℥ iv. |

"M., etc.

"On compounding this, it turned a muddy red. Please let me know through the columns of the AMERICAN DRUGGIST the cause of this change, and if it is natural or due to some impurity in some of the drugs?"

We cannot conceive what may have been the cause of the red color and muddiness. It certainly is not due to any normal constituent in any of the ingredients. Had there been any rhubarb added, we might account for it, at least partly. But as it is, we can only advise you to examine your stock of the ingredients. Perhaps the mystery will thus be revealed.

No. 1,842.—**Soap Bubbles** (H. H. S.).

"Please tell me where in the AMERICAN DRUGGIST I can find a formula for a solution for making soap bubbles? I remember seeing it, but am unable now to find it."

We published such a formula a few years since, but we have since tried it ourselves and found it worthless. Mr. James T. Shinn, corner of Broad and Spruce streets, Philadelphia, used to make an excellent solution for this purpose, and supplied with it a suitable metallic pipe for forming the bubbles. A letter addressed as above may secure the desired information.

No. 1,843.—**Syrup of Jardenella** (A. W. R., Ashland, Pa.).

"Will you oblige me with a formula for syrup of Jardenella?"

We are unable to reply to this. Can some of our readers furnish the information?

No. 1,844.—**Castor-bean Culture** (H. L. G.).

"Please to give me all the information (through your Journal) about the castor-bean culture, in regard to the soil, seed, care, etc., and from whence I can obtain the most information on the subject?"

We advise our correspondent to address the Commissioner of Agriculture at Washington, D. C., since some of the annual reports of that office contain, we believe, the information desired.

The second volume of a new work, by Heinrich Semler, of San Francisco, "Die Tropische Agrikultur," 8vo, Wismar (Hinstorff), Vol. I., 1886, will contain full practical instruction on the subject.

No. 1,845.—**Phenol Sodique** (Dr. C.).

The composition of this is as follows:

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|---|---|
| Carbolic Acid | 300 gr. |
| Caustic Soda | 20 gr. |
| Water | 5 fl. drachms. |

This is a clear liquid of an alkaline reaction, miscible, with water and alcohol in all proportions. At first it is colorless, but gradually turns reddish or brownish, and still darker. Only about one-seventh of the carbolic acid contained in it can be regarded as being chemically combined:

The first edition of the "German Pharmacopœia" contained this preparation under the title "Liquor Natri Carbolici." The U. S. National Formulary proposes to adopt it as "Liquor Sodii Carbolatis."

No. 1,846.—**Soap Spirit for the Hair** (Dr. C.).

Any kind of saponaceous liquid which will make a lather will serve for this purpose. For instance, the following:

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|---|---|
| White Castile Soap | 2 oz. |
| Rose Water | 8 fl. oz. |
| Carbonate Potassium | ½ oz. |
| Water of Ammonia | ½ fl. oz. |
| Water | 10 oz. |
| Alcohol | 6 oz. |

Dissolve the Castile soap in the water with the aid of heat; then add the other ingredients.

Here is another:

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|---|---|
| Soap Bark | 2 oz. |
| Water | 16 oz. |

Make a decoction; allow to cool, then strain. Mix the strained liquid with

| | |
|---|---|
| Alcohol | 6 fl. oz. |
| Rose Water | 6 fl. oz. |
| Water of Ammonia | ½ fl. oz. |

### Salicylated Plaster-Mulls and Salve-Mulls.

THE local application of strong salicylic acid "plaster-mulls" in the treatment of lupus is strongly recommended by Dr. Unna (*Lancet*, September 25th, p. 574). The name "plaster-mull" has been given to a dressing consisting of a very thin sheet of gutta-percha, coated on one side with an adhesive substance containing one or more medicinal compounds, and backed on the other side with mull or undressed muslin. The name of "salve-mull" also has been given to a similar kind of dressing, in which the medicaments are of a more soothing character, consisting of ointments having a basis of suet and lard, spread upon mull. In experimenting with a strong salicylic acid plaster-mull to remove the cuticle, and prepare lupoid tissue for other more destructive agents, Dr. Unna observed that salicylic acid itself exercises a most beneficial influence upon the new growth. The chief drawback is the great and lasting pain caused by salicylic acid when applied to a thin epidermis or raw surface. In order to obviate this, various combinations were tried, but cocaine failed to give relief, while opium and cannabis indica required an hour or two to develop their anodyne effect. The best results were obtained when genuine beech-wood creasote was combined with salicylic acid in the proportion of two parts of creasote to one of acid. Even then there is a painful stage lasting from ten to fifteen minutes, but a previous application of cocaine is sufficiently lasting in its effect to cover this period. The plaster-mulls are prepared in strips one metre long and twenty centimetres wide, the superficial area equalling one-fifth of a square meter. The salicylic acid plaster-mulls used by Unna are of five different strengths, containing respectively 10, 20, 30, 40, and 50 grammes of salicylic acid, and 20, 40, 50, 40 and 50 grammes of creasote to each strip.—*Pharm. Journ.*

THE

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## EDITORIAL.

WITH the commencement of our XVI. volume, we have introduced some changes in the arrangement of matter which, we hope, will be acceptable to our readers. The use of two columns to the page will not only improve the general appearance of the journal and facilitate the displaying of illustrations, but it will somewhat increase the amount of matter by lessening the number of blank spaces, and by avoiding waste in spacing out words to fit the narrow column measure.

THOSE who, at the end of the year, desire to bind the AMERICAN DRUGGIST for future reference, will find that by removing the outer leaves, the wire binding-staples can be reached. By raising the ends of the staples with a knife-blade, they can be withdrawn without injury to the journal, and the forms of text can then be removed entire.

SEVERAL years since we commenced the publication of titles of patents, trade-marks, and labels relating to the drug-trade. We continued the publication, without interruption, until last year, and the practice inaugurated by us has since been adopted by several drug-journals of this country. Although several offers were made us by patent-brokers and solicitors to relieve us of the labor of preparing the list, we found on each occasion of a trial, that the lists furnished by them were so far from complete that they were practically without much value, and we therefore preferred to do the work ourselves. As a really good report of such patents involves a considerable amount of work and occupies a great deal of space, we tried to learn whether it served any useful purpose, and were at length satisfied that its value to our readers did not justify its continuance. Since the publication of the list has ceased we have not received a single letter of inquiry relative to it, and so far as we can judge, our readers do not miss it. Hereafter we shall continue to answer any inquiries relative to patents, trade-marks, or labels, so far possible, and those who wish details respecting any particular U. S. patent can obtain them from the Chief Clerk of the U. S. Patent Office by forwarding twenty-five cents, with a memorandum of the number of the patent and name of the patentee.

WE solicit from our readers articles for publication relative to the business. Wherever illustrations are needed we will furnish them without expense to the author and will give any assistance in our power to render them creditable. Photographs and pencil sketches, however rough or crude, will be redrawn with care, and in the case of an original paper we will furnish the author with a reasonable number of separate copies of the paper if the request is made at the time the manuscript is sent. When papers are to be read before associations, we may be able to supply proofs in time for the author to use them in place of his manuscript, in which case the author's right to their public use before their appearance in the journal will be scrupulously regarded.

OUR columns are always open to correspondence relating to the practical details of pharmacy, whether it relates to professional or the purely mercantile interests of the business. When the matter is in the nature of a query, the writer's identity will be carefully guarded, if it is desired, and pains will be taken to furnish a prompt answer if possible. The only requirement we have to make in this connection is that the writer must furnish us with his name and post-office address for our *private* information.

WE have before called attention to the frequent omission by correspondents of the name of their *State* in letter-headings. This fact prevents us from answering by mail when, as is often the case, the post-master's stamp is too imperfect to admit of its being deciphered.

SOME years ago, an animated, but not very amicable discussion occurred in medical journals of England and this country concerning the relative social status of doctors' wives. Whatever their condition may be abroad, there would seem to be good reasons for believing that they are a "power behind the throne" in the United States, if there is any meaning in the recent practice of agents for the sale of mineral waters, medicines, sanitary appliances, etc., of addressing their circulars to

Dr. and Mrs. So-and-So.

Perhaps it is found that the circulars, which have been freely sent broadcast to doctors, are so generally consigned unopened to the waste-paper basket that the curiosity of the doctor's wife is taken into consideration. Rather a bright scheme, so it strikes us, and worthy of the trade.

ONE of the best evidences of a general revival of business would seem to be the fact that few papers on scientific topics appear in our pharmaceutical exchanges. One would infer that the customary writers are too busy in other ways, and that the natural result of private and occasional cogitation will bear fruit in some remarkably good work when summer leisure comes, and the State associations meet next fall.

THE picture of a tablet-maker's counter, on the first page, was made from a photograph kindly taken by Dr. Fuller, and we are indebted to Frazer & Co. for their courtesy in placing the facilities of their laboratory at our disposal for this purpose. This firm, and that of Boericke and Tafel, have taken the lead in tablet-making, and have greatly perfected many details of the method.

◆◆◆

**Iodized Hydrogen Water.**—This is the name which Dr. Martimer Granville gives to a water which he recommends in the *Lancet* for persons suffering from uric acid accumulations. The water acts, he believes, by taking up and washing out excrementitious matter while passing through the blood and the extra-vascular fluids of the organism. The water may be made by very slightly iodizing distilled water, or dissolving in it a minute quantity of hydriodic acid—not enough of either to render the taste disagreeable—and then passing well-watered hydrogen gas through it. Water will only dissolve about two per cent, by measure, of hydrogen gas, but this greatly increases its capacity for holding solids in solution.—*Chem. and Drugg.*

## CORRESPONDENCE.

### Opium Assay.

*To the Editor of the American Druggist.*

We see in your last issue a paper by Messrs. Wrampelmeier and Meinert, on the U. S. P. process for assaying opium, in which experiments are given attempting to disprove Mr. Conroy's results with regard to the amount of filtrate representing 5 grammes of opium. In the results which they publish, we cannot help noticing one point which, to us, seems inconsistent. The authors state that, when working on "powdered opium," the extractive from the opium was found to increase the volume of the liquid from 70 C.c. to 70.85 C.c., whilst in another experiment on opium, containing 20.7% of moisture, the volume of the fluid was only increased to 70.61 C.c. Now an average sample of opium will yield about 2.75 Gm. of dry extract when 7 Gm. are treated with lime and 70 C.c. of water, so that in the case of the sample above referred to, the filtrate would consist of 70 C.c. of water + 2.75 Gm. dry extractive + 1.449 C.c. of water contained in the opium. We think it will strike any practical pharmacist who reads the paper that these could not be compressed into 70.61 C.c., as the authors state was the case. We ourselves find that the increase in the volume of filtrate, working on powdered opium, amounts to about 2.2% (frequently more) of the original water used. Supposing the opium to have contained originally 20% of moisture, then 10 Gm. (= 8 Gm. of the powder) would increase the filtrate to 100 + 1.76 + 2 = 103.76 C.c. Under these circumstances we feel bound to support Mr. Conroy's results in opposition to those of Messrs. Wrampelmeier and Meinert. We may state that our results were obtained by the evaporation of 10 C.c. of the filtrate as obtained in the process of assay. We append the results obtained in one of our experiments:

10 C.c. filtrate = 10.16 Gm. when evaporated at 100° C. until it ceased to lose weight, left 0.378 Gm. of residue.

10 160 Gm. = weight of solution evaporated = 10 C.c.
.378 Gm. = weight residue.

9.782 Gm. = weight or volume of water in 10 C.c. of the filtrate.

$$\frac{50 \times 10}{9.782} = 51.11.$$

We shall be glad if you will kindly insert this in your next issue. Yours faithfully,

J. Oldham Braithwaite,
Edward H. Farr,
Pharmaceutical Chemists.

The Laboratory,
50 Southwark st., London.

*To the Editor of the American Druggist.*

Dear Sir:—In the November issue of your journal I find that I am called to task by Messrs. Wrampelmeier and Meinert in reference to a paper which I had the honor of reading before the Liverpool Chemists' Association, on December 4th, 1884. These gentlemen find fault with my paper because I state that 52 C.c. of the filtrate should be taken to represent the 5 grammes of opium, in the estimation of morphia in opium by the process of the U. S. pharmacopœia, and they contend that the increase in bulk due to the opium extractive is much less than I say, and that the 50 C.c. given in the U. S. pharmacopœia is nearer the mark.

Messrs. Wrampelmeier and Meinert have gone to much trouble to prove their statement by actual experiment, and I must admit that, *on paper*, their figures look very convincing. Notwithstanding this, I think that I shall be able to point out where their experiment has failed, and also to prove that 52 C.c. is the correct quantity of filtrate required to represent 5 grammes of opium. I contend that it is quite impossible the expel the whole of the moisture from the mark by drying it at 100° C. The mixture of lime with opium extractive, including the dregs, and containing all the other substances peculiar to opium, forms a compound that could not possibly be dried at this temperature, and a higher temperature would act injuriously. This is undoubtedly the cause of their failure.

I have now to show that 52 C.c. is the correct quantity of filtrate required to represent the 5 grammes of opium. The experiment referred to in my paper is founded on the well-known fact that opium yields, on an average, 50 per cent of solid extract, equal in consistence to good, new opium. It, therefore, follows that 5 grammes of opium contain 2.5 grammes of extract. This 2.5 grammes of extract, when dissolved in 50 C.c. of water, increases the bulk to 52 C.c.

I shall be pleased if Messrs. Wrampelmeier and Meinert will try this simple experiment and report the result.

Yours very truly, M. Conroy.

Liverpool, 56 Hanover st.

### Chloride of Lime Packages.

*Editors American Druggist.*

Gentlemen:—In your December number you call attention a process of packing chloride of lime in packages that are dipped in melted resin. That process is covered by U. S. Letters Patent No. 147,476 in which we are interested. Respectfully yours, Leggett & Bro.

* * *

### German Willow Boxes.

The *Chemist and Druggist* (Dec. 4th) has an article on this subject from which we take the following:

Box-making is notoriously an occupation in which only the poorest of people engage. In the east end of London it affords a scanty living to hundreds of families who have to work from early morning to late in the evening in order to earn a few pence per gross. Miserable as this work and its pay may be, it will astonish some to learn that the peasantry in a remote district of South Germany follow the same work during one period of the year for much less remuneration than is obtained in London. It is these people who make what is known in London trade as "German willow boxes," and this industry was started by Mr. Paul Metz, who, after much trouble, succeeded in finding a timber—in the locality mentioned—which could be worked into chips as easily as the English willow.

In the district to which we have referred, Mr. Metz has a central agency, superintended by a trustworthy overseer, who collects the timber, and has it cut up into logs for sale to the peasants. After the harvest season is over, the peasants go the agency and receive a supply of wood; this they take to their homes and slice it by hand into the thin shavings which are required for the sides and ends of the boxes. The slices are then suspended from the ceilings until they are thoroughly dried. Slicing is done by the father of the household or the elder sons, but in the other operations all members of the family who are able to lend a hand are employed.

After drying and smoothing out the slices of wood, they are stamped out into the circular pieces for top and bottom (which operation is done with punches obtained from the agency) and the long, narrow pieces required for the sides. This operation differs from that followed in making pill-boxes, in which case a long tube of card-board is first made, and then cut into shorter cylinders of the required size. In the case of willow boxes, the operation is much more tedious, as will be seen. The next part of the operation is the formation of the box; this is simply done by taking a disc, the edge of which is smeared with a peculiar quick drying cement, passing round it a strip of the wood, and placing below the over-lapping edge a touch of the cement. The box is then slipped between two parallel wooden bars, which allow free sliding, and yet prevent the bent wood springing back. The cement, although quick setting, does not become firm for half an hour or more, so that the two bars are of such a length that by the time a box traverses from one end to the other it is practically firm, although the worker passes in the boxes with remarkable rapidity. The cement which is used is one of the secrets of the industry; it is a home-made article, free from glue, yet strong and capable of resisting either damp or heat to a remarkable degree. The bodies and lids of the boxes are both made in the manner described, and, after being fitted, are carried to the agency, where they are examined, counted, and payment made according to number. This payment is very low, as may be judged from the fact that a man earns only from 5s. to 6s. (English) per week, young children from 2s. to 2s. 6d., and youths about 4s. But even this miserable pittance is "found money" to the peasants, and were it not for these German willows, they would, in most cases, have no employment during the winter, or would have to take to a lower class of box-making. There are over a thousand families engaged in the industry, apart from those employed in the agency to pack the boxes. It is rather a remarkable fact that the boxes, although made entirely by hand, and necessarily passing through several hands, are yet spotlessly clean. In this respect they are in no way inferior to machine-made boxes, while they have a polish about them which English willows do not have. This, we believe, is natural to the wood, and is enhanced by the peculiar manner of cutting it into slices and drying. [It is well known that English willow ointment boxes have become very scarce; in fact, we believe that none have been imported in this country for some time. One of us has had an invoice of the ointment boxes mentioned in the preceding article, and can testify of his own knowledge that they were well made, well glued, and clean.

There are several other manufacturers of wooden chip ointment boxes in Germany, but the product of some of them, which we have had some experience with, did not come up to our expectations.—Ed. Amer. Drugg.]

**A Fire-Proof Tree.**—A remarkable tree is mentioned in *Gardeners' Chronicle* (Sept. 18th, p. 360), which is said by Mr. W. T. Thiselton Dyer to be absolutely indestructible by fire, it surviving in large districts where the dry pastures and bush are burnt twice a year and everything except this tree is destroyed. It would be interesting to learn to what cause this immunity is due. The tree is a species of *Rhopala*, of a contorted appearance, and growing to about twenty feet in height.—*Pharm. Journ.*

## SELECTIONS FROM THE HOSPITAL FORMULARY

### OF THE DEPARTMENT OF PUBLIC CHARITIES AND CORRECTION OF THE CITY OF NEW YORK.

(Continued from page 173, vol. XV.)

### 136. *Emulsio Olei Morrhuæ cum Calce (I.) (Bell. and Char. Hosp.).*

| | |
|---|---|
| ℞ Olei Morrhuæ, | |
| Liquoris Calcis | āā fl. ℥ 8 |
| Olei Cinnamomi | ♏10 |

Mix.

*Dose:* A tablespoonful.

*Note.*—Lime-water produces an insoluble lime soap with fixed oils. Though this is no emulsion, it is called so for convenience. The flavoring ingredient may be altered according to taste. A good mixture for flavoring emulsions of cod-liver oil is prepared by adding to each pint of emulsion the following mixture:

| | |
|---|---|
| Oil of Bitter Almonds | 10 drops. |
| Oil of Gaultheria | 4 " |
| Oil of Cinnamon | 2 " |

### 137. *Emulsio Olei Morrhuæ cum Calce (II.) (Bureau O. D. P.).*

| | |
|---|---|
| ℞ Olei Morrhuæ | fl. ℥ 2 |
| Liquoris Calcis | fl. ℥ ½ |
| Syrupi Calcii Lactophosph. | fl. ℥ 1½ |

Mix.

*Dose:* A teaspoonful. (Dr. G. H. Bosley.)

### 138. *Emulsio Olei Morrhuæ pro Infantibus (Bell. Hosp.).*

| | |
|---|---|
| ℞ Olei Morrhuæ, | |
| Liquoris Calcis | āā fl. ℥ 5 |
| Mucilag. Acaciæ | fl. ℥ 4 |
| Syrupi Hypophosphitum | fl. ℥ 2 |
| Olei Cinnamomi | ♏30 |

Mix.

*Dose:* A tablespoonful.

### 139. *Emulsio Olei Ricini.*

| | |
|---|---|
| ℞ Olei Ricini | fl. ℥ 4 |
| Acaciæ pulv | gr. 400 |
| Aquæ | fl. ℥ 1½ |
| Syrupi, | |
| Aquæ Cinnamomi | āā fl. ℥ 3 |
| Spir. Cinnamomi | ♏10 |

Make an emulsion, in the usual manner, with the oil, acacia, and water. Then add the other ingredients successively, with continued trituration.

*Note.*—Spirit of cinnamon is prepared by dissolving 1 volume of oil of cinnamon in 9 volumes of alcohol.

### 140. *Emulsio Olei Terebinthinæ.*

| | |
|---|---|
| ℞ Olei Terebinthinæ | fl. ℥ ½ |
| Acaciæ pulv | ʒ 2 |
| Olei Menthæ Pip | gtt. 5 |
| Syrupi | q. s. ad fl. ℥ 4 |

Pour the oil of turpentine into a clean and perfectly dry 4-oz. vial, and shake it about so that the whole interior surface may be moistened by the oil. Then add the acacia, and shake again. Next add the oil of peppermint and enough syrup to make 4 fl. oz., and mix by agitation.

*Note:* On standing, this mixture will separate. It may be restored by shaking.

### 141. *Mistura Olei Morrhuæ (Bureau O. D. P.).*

| | |
|---|---|
| ℞ Olei Morrhuæ | fl. ℥ 16 |
| Liquoris Potassæ | fl. ʒ 2½ |
| Mellis | fl. ℥ 3 |
| Acaciæ pulv | ℥ 1 |
| Olei Anisi | gtt. 20 |
| Olei Menthæ Viridis | gtt. 18 |

Mix.

*Dose:* A tablespoonful. (Dr. G. S. Winston.)

### 142. *Oleum Morrhuæ Phosphoratum (Bell. Hosp.).*

| | |
|---|---|
| ℞ Olei Phosphorati (U. S. Ph.) | gr. 100 |
| Ætheris Fortioris | fl. ʒ 2 |
| Olei Morrhuæ | q. s. ad fl. ℥ 16 |

Mix.

*Dose:* 1 to 4 fluidrachms, as may be directed. 233 minims of the mixture, or, practically, ½ fluidounce, contain $\frac{1}{30}$ grain of phosphorus.

## III.—ELIXIRS AND WINES.

## IV.—TINCTURES AND SPIRITS FOR INTERNAL USE.

The formulæ for these preparations (Nos. 143–157) do not differ materially from those in common use, and are, therefore, here omitted.

## V.—HYPODERMIC SOLUTIONS.

Hypodermic solutions should be prepared with the utmost care, so as to exclude, as much as possible, all micro-organisms. If possible, the distilled water, vials, and everything coming in contact with them during the preparation should previously be sterilized by a sufficient degree of heat. If this is not convenient, the solution prepared with distilled water should be filtered through a small pellet of pure absorbent cotton, pushed into the neck of the funnel. These solutions should be prepared only in small quantity, as they are liable to deteriorate by keeping. Many of them may be preserved for a considerable time by the addition of 15 to 20 per cent of alcohol or glycerin, or by the addition of boric acid (about 5 grains to 1 fl. oz.), or by using chloroform water instead of plain distilled water for solution. The last-named agent is particularly useful. Preservatives should, however, not be added, except by the direction, or with the knowledge of the prescriber. As soon as the slightest change is noticed in any hypodermic solution, it should be rejected.

The doses appended to the several solutions quoted here may, of course, be varied by the prescribers, according to circumstances.

### 158. *Injectio Acidi Carbolici Hypodermica.*

| | |
|---|---|
| ℞ Acidi Carbolici | gr. 2 |
| Aquæ Destillatæ | q. s. ad ♏ 100 |

Dissolve and filter.

*Dose:* 5 to 15 ♏ ($\frac{1}{10}$ to $\frac{3}{10}$ grs. of carbolic acid).

### 159. *Injectio Aconitinæ "Duquesnel" Hypodermica.*

| | |
|---|---|
| ℞ Aconitinæ Nitrat. cryst., "Duquesnel" | gr. 1 |
| Aquæ Chloroformi | ♏ 2000 |

Dissolve and filter.

*Dose:* 5 to 10 ♏ ($\frac{1}{400}$ to $\frac{1}{200}$ grain of Duquesnel's nitrate of aconitine).

*Note.*—The utmost caution should be exercised in prescribing and using aconitine. There is great difference in therapeutic action between the commercial aconitines, some being very much weaker than others. Amorphous aconitines should never be prescribed or dispensed. The most uniform and reliable commercial variety during some years past has been Duquesnel's crystallized nitrate of aconitine, and until more experience has been gathered regarding more recent varieties, Duquesnel's alkaloid will alone be furnished for use in this Department. *Physicians are particularly urged never to prescribe aconitine without specifying the maker's name and the crystalline condition,* as very serious accidents have happened from the accidental and unintentional substitution of a very active variety for a weaker one, there being no means to distinguish the one from the other, except by their effects.

It is best, when preparing the above solution, to add some preservative, as the bulk of the solution is quite large, and it ought to be made to last some time.

### 160. *Injectio Apomorphinæ Hypodermica.*

| | |
|---|---|
| ℞ Apomorphinæ Hydrochloratis | gr. 2 |
| Aquæ Camphoræ | ♏ 100 |

Dissolve and filter.

*Dose:* 2 to 8 ♏ ($\frac{1}{25}$ to $\frac{1}{6}$ grain of the salt).

*Note.*—This solution should always be freshly made, as the salt decomposes under the influence of light.

### 161. *Injectio Atropinæ Hypodermica.*

| | |
|---|---|
| ℞ Atropinæ Sulphatis | gr. 2 |
| Aquæ Destillatæ | ♏ 100 |

Dissolve and filter.

*Dose:* 2 to 4 ♏ ($\frac{1}{25}$ to $\frac{1}{12}$ grain of the salt).

### 162. *Injectio "Brown-Sequard" Hypodermica.*

| | |
|---|---|
| ℞ Hyoscyaminæ Sulph, amorph., | |
| Coniinæ Hydrobromatis | āā gr. $\frac{1}{60}$ |
| Strychninæ Sulphatis | gr. $\frac{1}{16}$ |
| Brucinæ Sulphatis | gr. $\frac{1}{40}$ |
| Morphinæ Sulphatis | gr. $\frac{1}{10}$ |
| Aconitinæ Nitr. cryst., "Duquesnel," | |
| Atropinæ Sulphatis | āā gr. $\frac{1}{200}$ |
| Aquæ Destillatæ | ♏ 10 |

*Average dose:* 10 ♏.

*Note.*—This solution was at first prepared for certain patients who found great difficulty in swallowing pills, as a substitute for Brown-Sequard's neuralgic pill (see *Pilulæ Neuralgicæ*), the constituents of which (except the Cannabis Indica) are represented by it as closely as possible. Subsequently it was found, by Dr. H. V. Wildman, to be an exceedingly effective hypnotic in various forms of insanity accompanied by excitement and insomnia. In such cases it is preferable to administer a mixture of 5 minims of the above solution with 5 minims of Magendie's solution of morphine.

### 163. *Injectio Caffeinæ Hypodermica.*

| | |
|---|---|
| ℞ Caffeinæ Sodio-salicylatis | gr. 20 |
| Aquæ Destillatæ | q. s. ad ♏ 60 |

Dissolve and filter.

*Dose:* 6 to 8 ♏ (2 to 3 grains of this salt).

*Note.*—The sodio-salicylate and the sodio-benzoate of caffeine are the most soluble compounds of caffeine known, but, as furnished by the makers, they contain varying proportions of the alkaloid. Those prepared at the General Drug Department contain, uniformly, 50 per cent of caffeine.

### 164. *Injectio Cocainæ Hypodermica.*

| | |
|---|---|
| ℞ Cocainæ Hydrochloratis | gr. 4 |
| Aquæ Destillatæ | ♏ 100 |

Dissolve and filter.

*Dose:* 1 to 2 ♏ ($\frac{1}{25}$ to $\frac{1}{12}$ grain of the salt), repeated when required.

*Note.*—This solution, when used as a local application to mucous membranes, is best prepared with a saturated and filtered solution of boric acid in distilled water. When used hypodermically, chloroform water is preferable.

The mydriatic effect which cocaine exerts upon the pupil of the eye may be neutralized by adding one-half grain of hydrochlorate of pilocarpine to each fluidrachm of 4-per-cent solution of cocaine.

### 165. *Injectio Ergotini Hypodermica.*

| | |
|---|---|
| ℞ Extracti Ergotæ (U. S. Ph. 1880) | gr. 100 |
| Aquæ Camphoræ | q. s. ad ♏ 500 |

Dissolve and filter.

*Dose:* 5 ♏ and more.

*Note.*—This solution should be freshly made when wanted for use. It is of the same strength as the fluid extract, each minim representing 1 grain of ergot. In place of Extractum Ergotæ, purified Ergotin (so-called) may be used.

### 166. *Injectio Hyoscyaminæ Hypodermica.*

℞ Hyoscyaminæ Sulph. amorph......gr. 5
Aquæ Destillatæ.................fl. ℥ 1

Dissolve and filter.

*Dose:* 1 to 5 ♏ ($\frac{1}{100}$ to $\frac{1}{20}$ grain). As a hypnotic for insane patients, the average dose is 10 minims, equivalent to nearly $\frac{1}{10}$ grain of the salt.

*Note.*—Hyoscyamus contains two alkaloids—*hyoscyamine*, which is crystalline and forms crystallizable salts, and *hyoscine* (discovered by Ladenburg), which is amorphous. When hyoscyamine crystallizes from the final solution of alkaloids extracted from henbane, the mother-liquid contains the other alkaloid, *hyoscine*, together with a small proportion of hyoscyamine remaining in solution. As long as the separate existence of hyoscine was unknown, the mother-liquid was simply evaporated and the dry residue sold as "amorphous hyoscyamine." It is this amorphous mixture of alkaloids upon which most of the recorded therapeutic experience is based. The white crystalline alkaloid hyoscyamine is but feebly hypnotic or not at all (*Kobert*). The real hypnotic is *hyoscine*. But as it costs so much to separate this alkaloid completely from the residue [pure hyoscine costs ten times as much as hyoscyamine], and as the mixture obtained by simply evaporating the mother-liquid has been found equally effective, the manufacturers continue to supply the latter. Physicians desiring to use hyoscyamine as a hypnotic often specify: "*Hyoscyam. Sulph. pur.* (or *cryst.*), perhaps with the addition of the maker's name (Merck, Gehe, etc.) while in fact they should have specified thus: "*Hyoscyaminæ Sulphatis amorphi* (*colorati*)," which is in form of a *dry*, *yellowish powder*. The brown syrupy kind of hyoscyamine formerly supplied, and still kept in stock by many, is worthless, and should not be used.

### 167. *Injectio Morphinæ Hypodermica, Magendie.*

Magendie's Solution of Morphine.

℞ Morphinæ Sulphatis........gr. 16
Aquæ Destillatæ........ .fl. ʒ 1

Dissolve and filter.

*Dose:* 3 to 15 ♏ ($\frac{1}{10}$ to $\frac{1}{2}$ grain of the salt).

*Note.*—This is best preserved by using chloroform water in place of plain distilled water.

Special care should be taken that this is not mistaken for the "U. S. solution of Morphine."

### 168. *Injectio Physostigmatis Hypodermica.*

℞ Physostigminæ [*vel* Eserinæ]
Salicylatis.................gr. 1
Aquæ Destillatæ............♏ 160

Dissolve and filter.

*Dose:* 2 to 10 ♏ ($\frac{1}{80}$ to $\frac{1}{16}$ grain of the salt).

*Note.*—If this solution is to be kept in stock, 30 minims of the water may be replaced by alcohol, or a saturated solution of boric acid may be used in place of the water.

The salicylate is preferable to other salts of this alkaloid, as it is distinctly crystalline and not deliquescent. In solution it does not keep any better than the sulphate.

### 169. *Injectio Pilocarpinæ Hypodermica.*

℞ Pilocarpinæ Hydrochloratis.gr. 2
Aquæ Destillatæ...........♏ 100

Dissolve and filter.

*Dose:* 5 to 15 ♏ ($\frac{1}{10}$ to $\frac{1}{3}$ grain of the salt).

### 170. *Injectio Quininæ et Ureæ Hypodermica.*

℞ Quininæ et Ureæ Hydrochloratis.................gr. 5
Aquæ Destillatæ............♏ 10

Dissolve and filter.

*Dose:* 2 to 10 ♏ (1 to 5 grains of the salt).

*Note.*—Hydrochlorate of quinine and urea (also known as *chininum* (*bi-*)*muriaticum carbamidatum*) contains 69 per cent of pure, anhydrous quinine. (See NEW REMEDIES, 1878, 334.)

### 171. *Injectio Quininæ Hypodermica, Lente.*

℞ Quininæ Sulphatis........ .gr. 80
Acidi Sulphurici dil.........♏ 80
Acidi Carbolici liquef.......♏ 5
Aquæ...................fl. ℥ 1

Heat the quinine with the sulphuric acid and water to boiling (the object being to sterilize the liquid), then add the carbolic acid, and pour the liquid into a vial previously rinsed with boiling distilled water, which must be well stoppered.

Six minims contain about 1 grain of sulphate of quinine.

### 172. *Injectio Quininæ Hypodermica, Seltzer.*

℞ Quininæ Sulphatis .........gr. 20
Acidi Lactici.... ...........q. s.
Aquæ Destillatæ....q. s. ad ♏100

Dissolve and filter.

Five grains contain 1 grain of sulphate of quinine.

To be continued.

**Efficient Sedative Cough Mixture.**—Dr. H. C. Wood, of the *Therapeutic Gazette*, recommends the following:

℞ Potassii Citratis............ʒ i.
Succi Limonis.... ....... ..ʒ ij.
Syr. Ipecac... .............℥ ss.
Syr. simplicis .......q. s. ad ℥ vi.

M. Sig. A tablespoonful from four to six times a day.

When there is much cough or irritability of the bowels, paregoric may be added.

**Application for Warts.**—The following formula, a modification of that recommended by M. Vigier for corns, is largely used by Vidal:

℞ Acid. Salicylici........... 1 Gm.
Alcohol, 90°.............. 1 "
Ether....... .............. 2½ "
Collodion.................. 5 "

M. The solution should be painted over the affected surface each day.—*Jour. de Méd. et de Chirurg.*

**Night Service of Drugs.**—A correspondent of the *British Med. Journ.* writes: The Municipal Council has adopted M. Georges Berry's report in establishing a night service for the supply of drugs. It will be organized immediately. The sick who desire to procure the medicines prescribed by the medical officers to the night service, must apply to the police office, when a policeman, supplied with an order from the head office, will conduct them into a *maison de secours*. If the medicines prescribed be not there, or if the sick persons be not registered at the police office, they will be sent to one of the chemists who are officially police-service chemists. The patients who are able to pay will be charged cost price, besides giving one franc and a half extra for the trouble of being attended at night. A loan of 3,000 francs (£120) will be made for the night service for drugs.

Paste for use on tin may consist of 1 oz. of flour made into thin paste with a dilute solution of glue in water, and 2 drachms of Venetian turpentine.

Antipyrin, when given with arsenic, is said to cause an eruption resembling measles.

## Recent Medicinal Chemicals.

AT the recent meeting of the *Deutsche Naturforscher und Aerzte* at Berlin, Mr. E. Merck exhibited a large number of the products of his chemical works, and published a pamphlet containing notes on some of the more important of them, from which we make the following abstract:

*Cathartic Acid*, an acid glucoside, is a vegetable purgative. It is very complicated in its composition, and is very prone to decompose. It is almost tasteless. According to Kubly, 0.1 Gm. (about 1½ grains) produces loose bowels after about 14 hours. It is not used subcutaneously.

*Chromic Acid* has heretofore always been supplied in a more or less impure condition, sulphuric acid being always present. Merck has now succeeded in preparing absolutely pure chromic acid (entirely free from sulphuric), having the color of kermes, shining, deliquescent, and "easily soluble in water and alcohol."

*Molybdic Acid* as usually furnished contains more or less ammonia. Merck now furnishes a pure molybdic acid free from this impurity.

*Æthoxy-Caffeine.*—This compound is produced by substituting the group $C_2H_5O$ in place of one hydrogen in caffeine. It forms white, needle-shaped crystals, melting at 140° C., very little soluble in alcohol or ether, insoluble in water, and of strongly basic properties.

Dujardin-Beaumetz (*Jour. de Ph. et Chim.*, 1886, 611) considers it a pure narcotic, particularly useful in headache. It is generally administered in solution in water, by the intervention of salicylate of sodium. Dose, 4 to 16 grains per day; in single doses of 4 to 8 grains, or in divided doses of 1½ grains.

The same author has also combined it with cocaine as follows:

Æthoxy-Caffeine.........4 gr.
Salicylate Sodium........4 gr.
Hydrochlorate Cocaine...1½ gr.
Linden-flower Water... 2 fl. oz.
Syrup.................. ½ fl. oz.

*Agaricin* ("purissimum, Merck.").—The efficacy of this substance (really agaric acid) in relieving the sweat of consumptives has been demonstrated by J. M. Young, Seiffert, and Pröbsting in 1882. It is given in doses of $\frac{1}{12}$ to $\frac{1}{6}$ grain in pills, to which some Dover's powder is usually added, since agaricin often produces loose bowels, sometimes accompanied by violent abdominal pains. Young recommends the following combination:

℞ Agaricini..... ............gr. 8
Pulv. Ipecac. et Opii.......gr. 120
Althææ Pulv.,
Mucilag. Acaciæ........āā gr. 60

To be made into 100 pills; 1 or 2 pills to be taken at night.

The hypodermic administration of agaricin causes pain.

Note by ED. AM. DR.—Considerable quantities of Merck's agaricin have been used in Bellevue Hospital for relieving the night-sweats of consumptives, or other patients suffering from the same cause, with uniform success. It is usually given in combination with atropine and aromatic sulphuric acid:

℞ Agaricini (Merck)..... ....gr. 10
Atropinæ Sulphatis... ..... " 1
Acidi Sulph. Arom.......♏ 1200

Dissolve and filter. *Dose:* 10 minims, containing $\frac{1}{12}$ grain of agaricin, $\frac{1}{120}$ grain of atropine sulphate, and 10 minims of aromatic sulphuric acid. To be administered in syrup or simple elixir.

*Aloin.* Merck's aloin is "barbaloin," that is, it is the aloin extracted from Barbadoes aloes.

May be used hypodermically [? ED. AM. DR.] in doses of 2 to 4 grains.

*Apomorphine.* Rossbach recommends this as an expectorant, in combination with morphine :

℞ Apomorp. Hydrochlor.....gr. ¼
Morphinæ Hydrochlor. ... " ½
Acid. Hydrochlor. dil. .. ..♏ 8
Aquæ ........ ..........5 fl. oz.

Dose : A teaspoonful every 2 to 4 hours. To be dispensed in a bottle of black (or other non-actinic) glass.

*Arbutin.*—Uva Ursi leaves contain, among other constituents, arbutin, which is easily soluble in water, less so in alcohol, and has a bitter taste. According to L. Lewin, its action appears to be due to the fact that it is split up into several other compounds in the body, one of them being hydrochinon, from which emanate its antiseptic properties. Arbutin has been found highly beneficial in the treatment of catarrh of the bladder, in doses of 45 to 60 grains, either in solution or in powder.

*Atropine.*—Perfectly pure atropine is in the form of hard, shining, *heavy* crystals, melting at 115° C. (239° F.). It should be free from daturine (so-called light atropine), and if the melting point is below 115° C., it is always contaminated with this alkaloid, which also interferes with its crystallizing properly.

Atropine acts more strongly upon the pupil of the eye when it is mixed with cocaine. Hirschberg recommends:

℞ Atropine Sulphatis.........gr. ¼
Cocainæ Hydrochloratis... " 1½
Aquæ Destillatæ..........♏ 80

Since true Belladonna root is so much in demand, and its price has advanced so high, the so-called "false belladonna," derived from a Japanese species of Scopolia, has appeared on the market in large quantities, and always finds ready purchasers. It is, therefore, probable that this substitute is utilized by manufacturers of atropine, a supposition which is justified by the low melting point of some of the commercial atropines.

*Dibromated Camphor* — possesses properties analogous to those of monobromated camphor.

*Cocaine.*—Among the special uses or modes of application mentioned by Merck, the following deserve notice here :

Solutions of cocaine are best preserved by the addition of glycerin. Meyer recommends inhalations of cocaine in tuberculosis. Others recommend it generally as an anæsthetic in affections of the pharynx and larynx. It is added with advantage to solutions of bichloride of mercury used hypodermically in syphilitic cases, to deaden the pain caused by this mode of treatment ; a dose of ¼ grain of cocaine being about the right quantity. Randolph and Dixon recommend, as a painless caustic, a mixture of nitric acid and concentrated solution of hydrochlorate of cocaine. The wound is to be dressed with salicylate of cocaine.

The most efficient antidote against poisoning by cocaine is nitrite of amyl, according to Schilling.

*Codeine Phosphate.*—The introduction of this salt has rendered the hypodermic use of the alkaloid possible. It is recommended highly in diabetes, in doses of 1 grain three times daily, increasing every week by 1 grain, until about 9 grains are reached. Cod-liver oil should be given at the same time (Smith; Hermann). In morphinism, Leppmann recommends the alternate administration of one-third to seven-eighths grain of this salt, and eight grains of monobromated camphor.

*Colchicin.*—The pure, crystallized principle is a powerful poison and must be used with caution. The dose, in gout and rheumatism, is 1/120 to 1/60 grain, two or three times daily. Not to be recommended for subcutaneous use.

*Colocynthin*, the glucoside of colocynth, is soluble in water and alcohol. When administered internally, or *subcutaneously*, it acts as a purgative, but the hypodermic employment is painful. Injected into the rectum it causes purging within one hour. Dose, internally, 1½ to 6 grains; hypodermically, ⅙ to ⅓ grain, dissolved in water. [Possibly, when combined with cocaine, the hypodermic injection may be rendered painless. It would be very advantageous if it could be used in this way, as there are many cases where it would be desirable to be able to administer a purgative hypodermically.—ED. AM. DR.]

*Emetine.*—Pure emetine (from ipecac) is difficultly soluble in water, but easily in alcohol. It may be administered as an emetic, in doses of ⅙ grain: as an expectorant, in doses of 1/60 to 1/30 grain.

*Guaranine.*—Merck's guaranine is prepared, according to his own statement, from guarana, though it is identical with caffeine, and some other manufacturers do not hesitate to put up caffeine (from tea or coffee) as "guaranine."

*Hyoscine.*—Merck states that probably all the hyoscine sold in the market is derived from his factory.

This alkaloid is the most powerful hypnotic known. Merck quotes from a paper, giving an account of experiments made by Prof. Kobert and Dr. Sohrt, of Dorpat—but which had not been published yet when Merck wrote his article—the following passage:

"Among the drugs which are capable of quieting maniacal excitement, hyoscine occupies the first rank, both on account of its promptness, and by reason of its innocuousness in cases of severe heart-disease. There being only minute doses required, the treatment is not expensive."

*Lakmoid.*—This is a substitute for litmus. It is a derivative of resorcin (see our vol. for 1885, p. 68), and is a very delicate indicator. The following solution is recommended:

Lakmoid ... ............8 grs.
Water ..................3¼ fl. oz.
Alcohol (96%)... .........3¼ fl. oz.

*Naphthalin.*—Crystallized naphthalin purified by alcohol, has been found a valuable agent in the treatment of diarrhœa in cases of typhoid, in children, and in consumptives. It exerts only a local action in the intestines, as it is not absorbed. Dose, up to 75 grains per day.

*Papayotin.*—It will be of interest to compare Merck's statements with those of Gehe & Co., quoted in our last November number. Merck says:

1 part of papayotin peptonizes 200 parts of blood-fibrin. Some of the commercial papayotins often possess less than one-fourth of this strength. It is best to use the remedy in *alkaline* solution (a few drops of solution of potassa being added). In this way it exerts its action strongest. When the solution is acidulated with lactic acid, the effect is weaker. Papayotin does not dissolve the fungoid growth lining the respiratory tract in diphtheria and croup, but it loosens them so that they can be expectorated. For local applications and for inhalation, it should be used in as *concentrated* solution as possible.

*Physostigmine* (*Eserine*). — Small doses of this alkaloid have recently been found to possess constipating effects in man (1/60 to 1/15 gr.). In veterinary praxis it is used hypodermically (dose ½ grain) in colic of horses and cattle. For contracting the pupil of the eye, a solution of ½ grain in a fluidrachm of water is usually employed. A solution of eserine (or its salts) which has turned red is neither inert nor hurtful.

*Resorcin.*—Pure, resublimed resorcin has recently been more generally used for internal diseases. It has been recommended in cases of septic diarrhœa in children, either acute or chronic; 16 grains to be dissolved in 5 fluidounces of castor oil, by the aid of heat; the whole to be taken at one dose. Children to take one-fourth the amount.

*Glucose*, chemically pure and anhydrous, is offered by Merck. Many commercial brands said to be anhydrous, turn out to be far from being so. [A preparation of this kind was very much needed, for the purpose of making standard solutions of glucose, in making comparative tests with different reagents for sugar in urine.—ED. AM. DR.]

## The Violet Coloration of Starch Caused by Chloride and Bromide of Iodine.

IN testing potassium iodide for iodate by means of sulphuric acid and starch solution, a violet coloration is often noticed. H. Beckurts and W. Freytag find that a similar color is formed when chlorine or bromine water is gradually added to the blue iodide of starch solution, or when a slight excess of iodine is added to yellow bromide or chloride of starch. The coloration is undoubtedly due to the formation of a compound of starch and chloride or bromide of iodine. This color, like the blue iodine coloration, disappears when the solution is boiled, and reappears on cooling. The authors believe the presence of traces of chlorate to be the cause of the violet color appearing during the testing of potassium iodide.—*Chem. Centalbl.* and *J. Chem. Soc.*

**Squills in Hooping-Cough.**—Dr. Nettier, of Nancy, has treated a number of cases of hooping-cough with simple *Oxymel Scillæ*, taking pains only to obtain that which was of good quality. He advises abandonment of cough syrups, and uses the squill even when there is diarrhœa or vomiting. Dr. Runy corroborates the statements of Dr. Nettier, and says that he has known cases which have gone on for weeks, yield to this preparation of squill within a few days.—*Lancet.*

**Buffalo (N. Y.) College of Pharmacy.**—The students of this College have organized a society, and elected the following officers: *President*, John A. Moore, of Buffalo; *Vice-President*, Paul Habenstreit, of Buffalo; *Secretary*, John Kreuz, of Buffalo; *Treasurer*, L. O. Thompson, of Elmira.

An ounce of carbonate of ammonia to a pint of water is said to check mammary abscess if frequently applied.

A new preparation of the nature of collodion is made of Mastic (powdered), 3 grains; Balsam of Peru and narcotin, each ʒ i.; chloroform, ʒ v.; shake until dissolved. It is recommended as an application in neuralgia and to rheumatic joints to relieve pain, and, when spread on linen, as an adhesive plaster.—*l'Orosi.*

Tribromallyl, discovered by Wurtz, is prepared by decomposing iodal with 2¼ times its weight of bromine. It is a colorless liquid, s. g. 2.436, and soluble in ether. Two to four drops dissolved in ether may be given hypodermically, or five drops in capsules as a remedy for asthma, hysteria, whooping-cough, etc.

A PHILADELPHIA physician says that a great deal of what passes for heart disease is only mild dyspepsia, that nervousness is commonly bad temper, and that two-thirds of the so-called malaria is nothing but laziness. Probably he doesn't tell his patients so, but there is no doubt a good deal of truth in what he says.

**Notes on Essential Oils.**—A trade circular just received by us from Schimmel & Co., of Leipzig, contains a large amount of interesting information, from which we select the following:

*Oil of Anise and Anethol.*—Last year's scant harvest of Russian anise has been followed this year by an abundant crop, in consequence of which the price of the oil has been very considerably lowered. The harvest was gathered under unusually favorable conditions of weather, and the crop has a very fine appearance, though it is still contaminated with earth or soil, as it is customary to thresh anise in the open fields.

Induced by an increasing demand after extra fine qualities of oil of anise, Schimmel & Co. have undertaken the manufacture of *anethol*, the aromatic portion of oil of anise. This is a solid at temperatures below 20° C. (68° F.). In the oil it is accompanied by a light hydrocarbon, which is not solidifiable, and has a most disagreeable odor and taste. There can be no doubt that the presence of the latter in the oil greatly detracts from its quality, and that pure anethol should be considered superior to any kind of liquid oil of anise. But hitherto anethol has been rather a chemical curiosity (though familiar enough to those who handle the oil), because it could not be produced at a popular price. Schimmel & Co. announce that they have after long-continued experiments discovered a method by which they can produce pure anethol in any desired quantity. This method is not published, but the statement is made that no heat enters into the process, whereby one risk is removed of injuring the product. The price of anethol produced by the firm is not unreasonably high, compared with that of the oil.

There can be no doubt, in our opinion, that anethol is superior to any kind of oil of anise that has ever been put on the market, and that, where a fine anise flavor is demanded, no other substance can take its place.

*Oil of Camphor.*—The utilization of crude oil of camphor for the manufacture (or rather extraction) of safrol on a large scale, enables the manufacturers to offer the light oil of camphor, obtained as a by-product, at very low prices. It has been found to be very serviceable for dissolving resins and rubber, also for dissolving old indurated oil, paints and similar stains, and is, at the same time, less easily inflammable than benzin or oil of turpentine.

*Oil of Citronella.*—The export of this oil from Ceylon (Colombo and Point de Galle) is constantly increasing. The quantity shipped in 1885 was about 295,000 lbs. In 1886 this is sure to be greatly exceeded. Most of this oil is consumed in the United States (by soap manufacturers).

*Oil of Eucalyptus.*—Mr. Joseph Bosisto, the founder of the eucalyptus industry in Australia, has transferred his residence to Europe, in order to be able to superintend the organization of the industry in person. It is intended to put on the market two qualities of oil of Eucalyptus globulus, an inferior sort in large packages as heretofore, and another in small vials, holding 1 or several ounces, as a medicinal specialty. Schimmel & Co. doubt the wisdom of this last-named form of package so far as Germany is concerned.

The ordinary quality of oil of Eucalyptus amygdalina has been chiefly used as a perfume by soap-makers, though it has never attained to any importance, as there is no lack of cheaper ethereal oils of an agreeable odor. It is, however, possible that it may find practical employment as a destroyer of insects, since it has been found by Schultz to have strong insecticidal properties.

The oils of the different species of eucalyptus, though somewhat different from each other in odor, are nevertheless closely allied, and generally recall the odor of camphor or turpentine. One of them, however, namely, that obtained from Eucalyptus corymbosa, is reported to have a very pleasant odor, resembling that of roses and lemons. Schimmel & Co. attach the remark that, if this report is true, it seems strange that the oil has never made its appearance in commerce.

*Oil of Pine Needles.*—For purposes of perfumery, the oil distilled from the needles of the Silver-Fir (*Pinus picea*) deserves the preference. The oil which may be considered to be next in quality is that obtained from *Pinus balsamea* (the Balm of Gilead Fir). Both of these are used as refreshing perfumes, diffusing a delightful pine forest odor through the rooms, when used as spray. Somewhat inferior qualities [in our judgment] are the oils distilled from *Pinus Pumilio* (mountain pine), and from *Pinus canadensis*, the latter of which is made in this country. [The practical use of the two first-named oils does not seem to be much known as yet in this country, as we had ourselves considerable difficulty in obtaining the oils, they not being, as yet, kept in stock by the New York branch of the manufacturers.—Ed. Am. Dr.]

*Oil of Orris.*—This is one of those oils which do not spoil by age. As is well known, the oil consists to its largest extent of myristic acid, and only a minute quantity of the peculiar essential oil of orris, it being impossible to isolate the latter in a practical way. Though the oil, in its solid condition, will keep well, it is, nevertheless, advisable to make an alcoholic solution, and to keep it in this manner. This oil was first introduced by Schimmel & Co. in 1874, at which time the price per kilo had to be fixed at 2,400 marks. At present it can be sold for 850 marks. And while it was formerly prepared on a small scale, at present it takes no less than 2,000 kilos of orris root for a single charge of the apparatus.

*Artificial Oil of Bitter Almonds.*—Schimmel & Co. point out that the artificial oil [nitrobenzol or nitrotoluol are not meant by this] always contains more or less of free (?) chlorine, which fact alone permits it to be readily distinguished from the natural oil. [This impurity has been pointed out before, but is usually overlooked in testing the oil.]

*Oil of Patchouli.*—It is becoming more and more difficult to obtain suitable supplies of patchouli leaves. The latter are either delivered in poor quality, or the steamers refuse to take the packages on board, fearing that the strong odor of the contents may be communicated to other portions of the freight.

*Artificial Oil of Wintergreen.*—Schimmel & Co. have, some time ago, commenced the manufacture of artificial oil of wintergreen on a large scale. That is, they are making the pure salicylate of methylic ether, minus the terpene which is found in the natural oil, and which does not partake of its odor or taste. The quality of the artificial oil is at least equal to that of the natural, and its price is *lower*, whereby all competition of the natural oil is excluded. The firm has been able to accomplish this by means of a special arrangement made with the owners of the patents for making salicylic acid. [In our opinion, the artificial oil will in the future displace nearly all the natural oil, and the time is not far distant when the pharmacopœias of the different countries will have to recognize and officially indorse these products, in preference to those obtained from cruder natural sources.] We have already used the synthetic oil to some extent, and can report that it answers every purpose. Experiments are still being conducted to ascertain whether it is equal to the natural oil in its therapeutic properties (as a remedy in acute rheumatism); so far, there is every reason to report that it acts with at least equal promptness, a fact which was to be expected.

*Oil of Arnica Root.*—This is a new product. It is distilled from the fresh, dried root of Arnica Montana. The yield is 1.06%. It has a light yellow color, and an odor recalling that of radishes. It is not a homogeneous body, but consists mostly of thymohydrochinon-methylic ether, while the aqueous distillate is said to contain isobutyric, angelic, and formic acids.

Besides this the firm has also prepared oil of curcuma, carrot seeds, heracleum fruit, and parsnip seed. All of these are more for scientific than for practical use at present.

*Borneol or Borneo-Camphor.*—The genuine Borneo-camphor, as is well known, is found in the trunks of *Dryobalanops aromatica*, a magnificent tree growing chiefly upon Sumatra and Borneo. The camphor exists in crystals between the fibres of the wood, and can only be obtained by a total destruction of the tree. It has an odor entirely different from that of ordinary camphor, recalling that of ambergris. For this purpose it is valued highly by Asiatics, and fetches some 50 dollars per kilo, being altogether consumed in the eastern countries.

The fine odor of a sample of borneol which came into the possession of Schimmel & Co. led them to attempt its *artificial* preparation on a large scale. In this they have succeeded, the product being identical with the natural camphor chemically, and nearly so also physically.

[The nature of borneol has been studied by many chemists, and though its exact constitution has not yet been finally settled, yet there are various methods known by which it can be produced artificially.—Ed. Am. Dr.]

Schimmel & Co. think that borneol will be found a valuable agent in perfumery, in combination with certain other essential oils.

*Safrol.*—The introduction of this definite odorous principle of oil of sassafras has met with general approval and encouragement. As has already been stated in previous reports, it is obtained from crude oil of camphor by fractional distillation. Schimmel & Co. reckon the yearly consumption of oil of sassafras in all countries at 120,000 kilos, and they will shortly be in a position to produce a quantity of safrol equivalent to the above amount.

◆

**Safe Cough Mixtures.**—The *Chemist and Druggist* publishes the following formulas for the information of a correspondent who wishes something effectual and cheap. The first is from the pharmacopœia of a children's hospital; the dose, as given, being suitable for a child of about one year old.

| | | |
|---|---|---|
| I. | Paregoric | 2¼ minims. |
| | Wine of Ipecacuanha | 2½ " |
| | Treacle | 20 " |
| | Peppermint Water to | 1 fluidrachm. |

| | | |
|---|---|---|
| II. | (For adults). | |
| | Tincture of Tolu | 2 drachms. |
| | Paregoric | 1 ounce. |
| | Concentrated Solution of Licorice | 2 ounces. |

[The dose is not given, but we presume it would be a teaspoonful.—Ed. Amer. Drugg.]

**New York State Board of Health.**—Erastus Brooks, Esq., having died, and Dr. E. M. Moore, resigned, the Governor has appointed Mr. Thomas Newbold, of Poughkeepsie, and Dr. Maurice Perkins, of Schenectady, to succeed them.

## The Relative Merits of the Principal Urinary Tests.*

(Continued from page 175 of last volume.)

### SUGAR TESTS, CONTINUED.

4. *The Test with Indigo Solution.*

The urine is mixed with much carbonate of sodium, and afterwards with enough of a solution of indigo-blue to give it a distinct blue color. If it is now heated, it will assume a yellowish color if sugar was present; but the blue color will reappear if the urine is shaken with air. To render the test more handy, it was recommended to use two kinds of filtering paper, one impregnated with indigo-solution, and the other with solution of carbonate of sodium. These were to be used so that a piece of the indigo paper was to be immersed in a little water until this acquired the proper tint, when it was to be mixed with the urine. Afterwards it was to be rendered alkaline by adding a piece of the carbonate of sodium paper.

*Criticism.*—This test is not distinguished either by certainty or by distinctness. In both respects it is far inferior to Worm Müller's or Nylander's methods (described in our last volume, p. 175). It may occasionally serve as a convenient preliminary indicator, if large quantities of sugar are present.

5. *The Picric Acid Test.*

A few drops of solution of picric acid, or a piece of paper saturated with it, are added to the urine, and afterwards some solution of potassa. A deep-red color is stated to indicate sugar.

*Criticism.*—It remains to be proved that this is a reliable test. As picric acid and potassa alone give already a reddish color, the judgment of the observer, at the best, has to be based upon the depth of tint. Consequently, the test lacks sharpness. A few tenths of one per cent of sugar in urine do not produce a distinct difference from the tint produced without sugar. Though the test appears very convenient, it cannot be recommended.

B. *Other Tests for Sugar.*

The preceding six tests depend upon the fact that sugar has the power of reducing certain inorganic or organic compounds. The following tests are based upon other considerations:

6. *The Test with Solution of Potassa at a boiling Temperature* (MOORE'S TEST).

Mix the urine with solution of potassa, and boil for some time. If the liquid contains sugar, it will turn brown. On acidulating with diluted sulphuric acid, the odor of burned sugar (caramel) will be noticeable.

*Criticism.*—Though the test may be regarded, in a general way, as *certain* if sugar is present, yet there are other possible (but abnormal) constituents of the urine which may produce a reddish color with potassa (for instance, chrysophanic acid) and which may be the cause of mistakes. On the other hand, the reaction is not sensitive, since even normal urine will turn darker, and if less than one-half per cent of sugar is present, no distinct alteration of the color can be noticed.

7. *The Test with Diazobenzolsulphonic Acid and Potassa* (PENZOLDT'S TEST).

This test was first published by the author (in *Berlin. Klin. Wochenschrift*, 1883, No. 4) and has been confirmed, regarding its reliability, by others.

The diazobenzolsulphonic acid must be freshly dissolved each time the test is to be made. This is best done by adding about sixty parts (by weight) of water to one part of acid, and thoroughly shaking, without warming. If the acid does not all dissolve, the liquid is simply poured off the undissolved portion.

A few cubic centimetres of the urine to be examined are now put into a test-tube, rendered strongly alkaline with solution of potassa, and mixed with an equal quantity of the solution of diazobenzolsulphonic acid, previously likewise rendered very faintly alkaline.

At the same time a parallel test is made with a normal urine of as nearly as possible the same color and degree of concentration. This is used for comparison.

If the urine contained sugar, it will at first assume, under the test, a yellowish-red or bright claret-red color. Gradually, however, this color will deepen, and finally—if much sugar is present—it will become dark-red and opaque. Usually within fifteen minutes—earlier when much sugar is present, and later in the opposite case—the foam on top of the liquid will have assumed a characteristic purplish color, which is seen most distinctly when the foam is shaken. In doubtful cases it is well to allow as much as an hour for the reaction. The color of the foam on the blank sample is only yellow to brownish. In the case of a diabetic urine, the wall of the test-tube is rendered red by the liquid; in the case of a normal urine, only yellow. If strips of filtering paper are dipped into the liquid, they acquire a rose-red tint in that containing the sugar, while they only become yellow in the other. As the red color changes rapidly by exposure to air, it is necessary to make the comparison without delay.

The test may be rendered more convenient for judging the tint, but rather more circumstantial for execution, by using sodium-amalgam at the same time.

*Criticism.*—The reaction may be considered as reliable, as no other substance likely to occur in the urine under ordinary circumstances has been found to produce the red tint. A few chemical substances, none of which have, however, been as yet found in urine, appear to produce the same reaction, but they may for the present be disregarded. As to the sensitiveness of the test, 0.1 Gm. of sugar in 100 C.c. of normal urine could just be detected yet; 0.2 Gm. was indicated plainly. The test requires, indeed, some practical experience, as well as a careful observance of the blank sample used for comparison. It has, however, one disadvantage. Diazobenzolsulphonic acid is explosive in a dry condition, or when brought in contact with a flame, or by strong blow. If the substance is quite pure, the explosion is not violent. Experience has shown that it is best to preserve it in divided portions of one Gramme each (a quantity which will last a long time), in dark bottles filled with chloroform. When the test is to be used, the chloroform is poured off from the substance in one bottle, a little of the latter transferred to a test-tube, and the bottle filled up again with chloroform. The latter does not interfere with the reaction.

[NOTE of ED. AM. DR.—Diazobenzolsulphonic acid exists in several varieties. That which the author refers to is the *para*-variety. It is prepared and sold, for instance, by Schuchardt, of Görlitz, and sent out by him in bottles filled with chloroform, as recommended by the author. It may be prepared by dissolving para-anilinesulphonic acid in moderately dilute solution of soda, mixing the liquid with a little more than the calculated quantity of nitrite of sodium, and pouring the whole into an excess of cold, diluted sulphuric acid. Its composition is $C_6H_4NSO_3.N$. The acid is in form of small needle-shaped crystals, according to Laar "insoluble in water" (which should evidently be corrected to "but slightly soluble in water"). It should be handled with care. Gaseous ammonia causes the solid acid to explode, as well as heating or strong concussion.]

8. *The Test with Acetate of Lead and Ammonia* (RUBNER'S TEST).

Add an excess of solution of acetate of lead to the urine, filter, add ammonia until a permanent precipitate appears, and warm. After a few seconds, there will appear a rose to flesh colored tint in the precipitate and the liquid.

*Criticism.*—Rubner states that the test is reliable, as it only occurs with glucose. He states that, if sugar of milk is present, the filtrate will, after protracted boiling, assume a much more intense red color than when glucose is present. As to its sensitiveness, the author claims it to detect as little as 0.1% of grape sugar. Dr. Penzoldt, however, says that even in presence of 0.25% of glucose, the reaction is not always distinct enough. Further study of the reaction is evidently necessary.

9. *The Test with Solution of Subacetate of Lead and Ammonia* (Author unknown).

Add to the urine a few drops of ammonia, and then a few drops of solution of subacetate of lead. Then warm the resulting, curdy, white precipitate short of boiling and avoiding also the evolution of bubbles. If glucose is present, the precipitate will turn flesh-colored to purple.

[NOTE OF ED. AM. DR.—This test, like that of Rubner, mentioned under No. 8, is only a refined modification of one known for some time, and which is mentioned by various authors, f. i., Hager in "Pharm. Praxis," II., 855. "Ammoniacal solution of acetate of lead precipitates white 'glucosate of lead,' easily soluble in the precipitant when cold, but separating, upon boiling, with a brownish-red color, and then no longer soluble."]*

*Criticism.*—In urine free from sugar, Dr. Penzoldt never obtained the reaction; hence he considers it as *reliable.* It is, besides, quite *sensitive*, for a urine containing only 0.2% of glucose gave it with great distinctness. It is easy of execution, though it requires care and some practice.

10. *The Test with Phenylhydrazin and Acetate of Sodium* (JACKSCH'S TEST).

To 50 C.c. of urine add 2 Gm. of hydrochlorate of phenylhydrazin and 1.5 Gm. of acetate of sodium previously dissolved in 20 Gm. of water, and heat the mixture on the water-bath. If sugar is present, a yellow, crystalline precipitate of a substance, termed by E. Fischer (who first discovered it) "phenylglucosaron" will separate in about 10 or 15 minutes; often the precipitate appears amorphous. But, on examination under the microscope, or after recrystallizing from alcohol, the characteristic needle-shaped crystals will be observed.

*Criticism.*—This test was proposed by Jacksch upon the facts regarding phenylglucosaron published by Fischer. [The latter had already tried to use the reaction for discovering sugar in urine, but as he did not obtain any useful results, he did not publish them.] According to Dr. Penzoldt, the test lacks reliability, since there are other substances liable to occur in the urine which give the same reaction. Besides, it requires so much care and time that it does not appear suitable for practical use.

11. *The Fermentation Test.*

The following method is the most preferable, and may be followed even by the busy practitioner when accurate results are desired. It is necessary to procure a number (at least 3) of so-called fermentation tubes (see cut). These are charged with liquid, in such a manner that the long cylindrical leg is completely filled with it, without a trace of air. In order to have the test fully reliable, it is necessary to charge three tubes at a time as follows:*

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* Abstract of a pamphlet by Prof. Dr. F. Penzoldt, of Erlangen, entitled: "Aeltere und neuere Harnproben, und ihr praktischer Werth." (2d ed., 8vo, Jena, 1886). We can recommend this little work to every one who has to make urinary examinations, as being of great practical value.

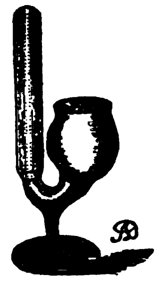
* Dr. Penzoldt says that he owes the knowledge of this—apparently so far unpublished—reaction to Dr. Dittmer, of Berlin, who saw it in Lüdeke's pharmacy in Berlin. He could not ascertain the author.

1. One with the urine to be examined, to which a small piece of yeast, of about the size of a pea, is added.

2. The second with a solution of glucose in water and a similar piece of the same yeast.

3. The third with normal urine and yeast.

The second tube is intended to prove the effectiveness of the particular yeast employed, and the third is to show that the yeast itself does not contain any sugar. It appears also advantageous to add to the contents of each tube a drop of a solution of tartaric acid. All three tubes are placed at the same time in a moderately warm location (not over 30° C. = 86° F.). After a few hours, the first tube will be found to begin the evolution of gas in the closed limb if sugar was present. If the quantity of the latter was very small, a longer time may be required. While gas collects in No. 1, however, no sign of any must appear in Nos. 2 and 3. It now remains only to show that the developed gas is carbonic acid. This is done by filling the open, shorter branch of the apparatus with solution of potassa to the very brim, closing the orifice with the thumb, and shaking. On replacing the tube on the table, the gas will have disappeared in the tube, if it was carbonic acid. To make sure that the column of liquid in the closed leg will not give way of itself, mercury may be poured into the cup, in which case the solution of potassa may be introduced into the urine, contained in the long leg, by means of a curved pipette. But neither is absolutely necessary.



*Criticism.*—The fermentation test is by far the most reliable, and, according to Dr. Penzoldt, sufficiently sensitive, 0.2% of sugar being just recognizable (and even 0.1%, if a larger apparatus is used). The drawbacks are that it requires special apparatus, time, care, and some labor. But, on the other hand, the test is not liable to errors if properly performed, and is therefore to be relied upon.

### *Summary Regarding the Sugar Tests.*

After what has been said, it appears to be unwise to use the indigo test (No. 4), except under certain conditions. For a preliminary examination at the bedside or the consulting room, the most appropriate tests are that with Fehling's solution (either original or modified by Worm Müller), and still more, the bismuth test (No. 3), modified by Nylander. The reaction with basic acetate of lead and ammonia (No. 9) likewise seems to deserve more frequent application. But if all these tests give a doubtful result, then reliance is to be placed upon the *fermentation test* (No. 11).

(To be continued.)

**Glycyrrhizate of Quinidine.**—Hager has recently suggested a compound of glycyrrhizin and quinidine as a form of administering the latter alkaloid so as to be almost deprived of bitter taste. He gives the following directions for its preparation.

Pour 1,500 parts of distilled water, heated to about 40° C. (104° F.) upon 1,000 parts of peeled Russian liquorice root reduced to small pieces 'intermediate between small slices and a coarse powder;' allow to macerate twelve hours, then transfer the mass to a percolator, and extract it, first, with 1,500 parts of distilled water in which some water of ammonia (70 cubic centimeters for every kilo of liquorice) and 15 parts of effloresced carbonate of ammonium had previously been dissolved. Afterward continue the extraction with distilled water, until the percolate has a pale-yellow color and scarcely possesses a sweet taste. Filter the percolate and mix it, under constant agitation, with a solution of 75 parts of sulphate of quinidine in 500 parts of lukewarm water mixed with 30 parts of hydrochloric acid of spec. gr. 1.124.

Allow the liquid to stand during one hour. Then, if it should have a strongly alkaline reaction, mix it with acetic acid until it is neutral. After a few hours, collect the precipitate upon a strainer, wash it with a little cold distilled water, press it, cut it into pieces of about ¼ inch thick, and dry them upon plates of porcelain at a moderate heat.

The mother-liquid may be utilized for the preparation of the tannate of quinidine. The yield of glycyrrhizate amounts to about 200 parts. The powdered product has a grayish-yellow color, is not soluble in water, and only slightly so in alcohol. Alkalies and acids decompose it. It has the composition $2C_{20}H_{24}N_2O_2.C_{44}H_{63}NO_{18}.2H_2O$, and it contains 41.09 per cent of quinidine.—*Zeitsch. d. Oest. Ap. Ver.*, No. 31.

**Preservatives of Lard.**—A series of experiments has recently been made by Mylius, for the purpose of ascertaining the best method of keeping lard from turning rancid. He made a mixture of

Lard, as fresh as possible.....90 parts
Water.......................10 "

and used this mixture to prepare ointments with various preservatives. After 14 days, a sample was taken from each lot and a definite quantity of solution of iodide of patassium added to each. After 3 hours, the samples were arranged according to the color they had assumed. The following results were obtained:

| Preservatives added. | Color of ointment. |
|---|---|
| 1. Glycerin, 10%, Oil Cloves, 0.1%, | white. |
| 2. Oil Cloves, 0.1 and 0.2%, | light yellow. |
| 3. Benzoic Acid (dissolved in the fat), 0.1 and 0.2%, | light yellow. |
| 4. Benzoic Acid (mixed in), 0.1 and 0.2%, | light yellow. |
| 5. Cinnamic Acid, 0.1 and 0.2%, | light yellow. |
| 6. Carbolic Acid, 0.1 and 0.2%, | brown. |
| 7. Creasote, 0.1 and 0.2%, | brown. |
| 8. Oil Wintergreen, 0. 1and 0.2%, | brown. |
| 9. Balsam Peru, 0.5%, | brown, |
| 10. Salicylic Acid, 0.1 and 0.2%, | brown. |
| 11. Boric Acid, 0.1 and 0.2%, | dark brown. |
| 12. Glycerin, 10%, | dark brown. |
| 13. Without preservative, | dark brown. |

After 1 day, 4 weeks, and 2 months, respectively, the same results were obtained.

All experiments made since then have shown that oil of cloves answers the purpose best. And even benzoic acid will answer if it was dissolved in the fat by melting.

It remains, however, to be ascertained why these substances retard the absorption of oxygen by the fat.—After *Pharm. Centralh.*

**Tribromide of Allyl as a Nervous Sedative.**—Tribromide of allyl was first obtained by Ad. Wurtz, by acting upon iodide of allyl with 1½ times its weight of bromine. It is a colorless liquid, very soluble in ether, boiling at 217° C. (422° F.), solidifying at −10° C. (14° F.), and having the specific gravity 2.436.

Dr. Fleury has found that this substance is a powerful nervous sedative. It retards or suspends the convulsions produced by picrotoxin and strychnine. Taken by itself, it produces a sort of intoxication with great lassitude, but is not fatal, at least in small doses.

The author has used the drug with good success, both hypodermically and by the mouth. For hypodermic use, 2 to 3 drops are dissolved in 15 to 30 min. of ether and injected, but the injection causes pain, probably due to the ether. The internal administration is best accomplished by giving it in doses of 5 drops (equivalent to about 2 grains), contained in capsules, of which one or two may be given 3 or 4 times in 24 hours. The affections in which Dr. Fleury has used the drug so far are hysteria, asthma, whooping-cough, angina pectoris, infantile convulsions, gastralgia, and neuralgia.—*Journ. de Méd. de Paris.*

**Infusorial Earth as a Vehicle for Acids, etc.**—*Kieselguhr*, a soft friable deposit found in various localities and consisting almost entirely of the siliceous shells of infusoria, has been long in use as an excellent absorbent for certain liquids. Saturated with nitroglycerin it forms one of the varieties of dynamite, in fact the first dynamite was thus prepared. Bromine sticks have been introduced by Dr. Franck, being kieselguhr containing a definite proportion of bromine, and compressed into sticks.

Sulphuric acid is now put up in this manner by Vorster and Grüneberg, of Cologne. Kieselguhr can take up between 5 and 6 times its own weight of the acid, without appearing wet or moist. In this form it is likely to be applicable to many purposes, such as filling exsiccators, drying cylinders for gases, etc.—*Polyt. Notizbl.*

[See also p. 49 of AMER. DRUGGIST for 1885.]

**Discovery of Cobalt Mines in Queensland.**—Cobalt ore has recently been found near Kilkivan, in the Wide Bay District of Queensland. The ores of this metal were hitherto unknown in the colony, although the neighborhood of Kilkivan was known to be rich in mineral products, including gold, silver, copper, mercury, and lead. Mr. F. Smith, who discovered the deposits under notice, reports that they come under the designation of earthy cobalt, and were mixtures of cobalt, nickel, iron, manganese, and copper, in somewhat variable proportions. They are ten miles distant from Kilkivan itself; the reef or lode of the ore now being opened is situated in one of the spurs near the heads of the Wide Bay Creek, and between the tributaries of that water-course known as Fat Hen and Copper Mine Creek. The reef measures twenty-one feet in thickness, but it is not claimed that the whole of this is cobalt ore of the best quality. It is said that the Queensland ore contains no less than twenty-two per cent of cobalt, which, if true, would render it more valuable than any other cobalt now in the market, as the average yield of the commercial cobalt does not exceed from two to ten per cent. Cobalt is a mineral of which the price, to a great extent, depends on its supply, and the latter has hitherto been small; but no doubt with a greater output fresh uses for cobalt will be discovered and the mineral become more valuable. The existing statistics of the production of cobalt in many cases give the ore as of nickel and cobalt. In the United States, in 1882, the value was £3,000, but the quantity raised was not stated. In Germany, in 1881, the statistics gave 191 tons, value £13,005, equal to £68 per ton; in Spain, in 1882, 40 tons, value £1,046; equal to £26 per ton; in Norway, in 1879, 108 tons, value £11,112 or £103 per ton; and finally Sweden produced an average quantity of 153 tons per annum during ten years. The value of the ore of nickel and cobalt was given variously as from £40 down to £4, according to quality and locality. Kilkivan is situated in the Wide Bay district of Queensland, to the north-west of Brisbane, at about 26° S. Lat. and 153° W. Long. The Kilkivan branch of the Maryborough and Gyrespill Railway, which is about to be completed, will open up the district to commerce.—*Chem. and Drugg.*

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* [Practically, a narrow test-tube or a long homœopathic vial that can be reversed in a small dish of mercury or of the urine to be examined, is all that is essential.—ED.]

**The Salt Mountain of Palestine.**—U. S. Consul Merrill states that this mountain is situated at the south end of the Dead Sea. Its length is six miles, width three-quarters of a mile, and height not far from 600 feet. The mass of the mountain is composed of solid rock salt, some of which is as clear as crystal. How far this deposit of salt extends below the surface of the ground no one at present knows. This salt and that obtained from the Dead Sea are a Government monopoly. Consul Merrill believes there is a mine of wealth in the mountain, and if capitalists were allowed to work it, the prosperity of the country would be greatly increased.—*Chem. and Drugg.*

**Removal of Arsenic from Hydrochloric Acid.**—F. J. Otto found that it is impossible to deprive *pure* hydrochloric acid of all traces of arsenic which it may contain, by means of hydrosulphuric acid. This has been confirmed by others. But Dr. Bannow has observed that *crude* hydrochloric acid may thus be freed from arsenic, the probable reason being, that the crude acid contains constituents which facilitate the reaction. According to him, the purification is performed in the following manner:

The *crude* hydrochloric acid is first diluted, if necessary, to the spec. gr. 1.12, and a current of hydrosulphuric acid gas is then passed through it under constant agitation, until the acid retains the odor of it. It is then set aside for twenty-four hours at a temperature of 20°-30° C. (68°-86° F.), then again saturated with the gas, and this process repeated in intervals of twenty-four hours, until the acid permanently retains the odor of the gas. It is then set aside to clarify, then carefully decanted, filtered, and the filtrate, which is now absolutely free from arsenic, distilled. The first portions which have the odor of hydrosulphuric acid, are caught separately and rejected. The next portion is received as pure acid, and this usually continues until the liquid has been reduced to one-tenth.—*Chem. Zeit.*

**Estimation of Urea.**—One of the most frequently employed, modern methods of estimating urea is that by the volumetric determination of the nitrogen given off by urine when treated with an alkaline hypobromite. F. Schenck has recently made a critical examination of this method, when he found that it generally indicates much more nitrogen than the urine contains. Hence he considers it unsuitable for estimating either the urea, or the total nitrogen in urine.

*Note.*—Nevertheless, if the hypobromite solution has been standardized upon a solution of pure urea of known strength, and the conditions under which the experiments are made are as nearly alike as possible, the results will be sufficiently correct for practical purposes.—ED. AM. DR.

Pflüger and Bohland describe a method for the rapid estimation of urea, which is especially suitable as a preliminary test before executing one of the exact but more tedious methods.

It is a modification of Liebig's volumetric method. Mix a small quantity of bicarbonate of sodium with water to a thick magma, and place a series of drops of this mixture upon a plate of glass. Next measure 10 C.c. of urine into a beaker, and allow a solution of mercuric nitrate (containing 77.2 Gm. of pure mercuric oxide, dissolved in the smallest necessary quantity of nitric acid and enough water to make one liter) to run into it from a burette in quantities of only two or one cubic centimeters at a time. Remove a drop now and then, and place it upon one of the drops on the glass-plate. As soon as a permanent yellow-color is thereby produced, the number of cubic centimeters of mercury solution is read off. This figure, multiplied by 0.04 gives the percentage of urea in the urine with a probable error of ± 0.15 per cent.—After *Zeitsch f. anal. Chem.*, 1886, 601.

**Sugar of Milk as Tooth-Powder.**—According to a communication in the *Pharm. Zeitung*, sugar of milk is said to be preferable to all other kinds of tooth-powders usually employed. It is said to cause the calcareous deposit between the teeth to become detached after a short time. In applying it by means of a tooth-brush, it is recommended to brush it from the gums to the extremity of the teeth both in the upper and the lower jaw, and the tooth-brush should be a soft one.

[Teeth rapidly decay under the influence of minute germs which grow in an acid medium. So long as the liquids in contact with the interior of the mouth are alkaline, the teeth will do well. The products of sugar fermentation are acid, and it is a long-recognized fact that the residue left between the teeth of those who eat candy favors rapid decay. To deliberately *use* sugar as a dentifrice would be idiotic.—ED. AM. DR.]

**Sulphurized Suint.**—According to M. Rohart, the grease of sheep's wool, at the temperature at which it melts, very readily absorbs certain sulphur compounds (*Nature*, September 30th, p. 531). For instance, it will fix as much as one hundred times its volume of sulphuretted hydrogen. After this treatment; it is easily saponifiable in the cold state, by simply treating it for less than an hour with an alkaline carbonate, caustic alkali not being required. This treatment is said to be applicable to all kinds of fat when sulphurized. M. Rohart recommends a sulphurized soap prepared from suint for use in vine cultivation.—*Pharm Journ.*

[Probably a soap of this kind could also be prepared for the treatment of certain skin diseases. It might take the place of such soaps or salves in which the sulphur is present in a free state.—ED. AM. DR.]

**Rectal Injections of Medicated Gases.**—The treatment of pulmonary phthisis with rectal injections of medicated gases has been reported upon favorably by Dr. Bergeron (*Brit. Med. Journ*, October 2d, p. 651). About four or five liters of carbonic-acid gas is passed through one quarter to half a litre of a mineral water containing sulphur and then introduced into the rectum, two injections being made in the course of twenty-four hours. After two days of this treatment, cough is reported to have been cured, expectoration modified in quantity and character, profuse perspiration stopped, and the general condition improved, even in cases in the confirmed stages of phthisis.

**The Sweetening Power of Saccharin** has been the subject of recent experiments by C. J. S. Thompson, of Manchester, Eng., who communicates the following results to the *Pharmaceutical Journal.* A one-per-cent solution in hot water, although very sweet to the taste, has a flavor distinctly different from that of cane sugar. Ninety minims of this solution, added to one containing four grains of quinine sulphate, quite masked the bitter taste of the latter and rendered it palatable. Thirty minims of the same solution sweetened half a drachm of tincture of iron, and it required twenty minims to cover the salt taste of ten grains of bromide of potassium.

**Action of Light on Ferments.**—*Nature* (October 7th) says that the results of experiments by Dr. A. Downes on the effects of exposure to sunlight upon ferments seem to have a direct bearing upon the various physiological ferments commonly met with in pharmacies. Active solutions of malt diastase, pancreatic diastase, and trypsin became inert after exposure in half-filled flasks for one month to sunlight. A solution of pepsin was similarly affected, although the pepsin was not so well prepared as desirable. Rennet, although its properties were enfeebled, retained some characteristic properties after the month's exposure. In control experiments in flasks kept in the dark, the ferments remained active.—*Pharm. Journ.*

**Excessive Irritation of the Skin** due to application of tincture of iodine, whether owing to the presence of acetone in badly rectified spirit or to sensitiveness of the skin, may be immediately relieved, according to Mr. Carles (*Journ. Pharm.*, Oct. 1st, p. 315), by applying alkalies and alkaline salts. Dilute ammonia or soda crystals may be used with robust skins, and alkaline sulphites, bisulphites, or hyposulphites when the skin is delicate. Best of all is a one-per-cent to ten-per-cent watery solution of sodium sulphydrate. This may likewise be employed for removing iodine stains.—*Pharm. Journ. and Trans.*

**The California College of Pharmacy** held its fourteenth annual commencement exercises on Nov. 17th, and granted diplomas to F. T. Bond, F. M. Boswell, F. O. Bratton, A. A. Drossel, T. H. Hughes, S. F. Hughes, E. J. Molloney, C. L. Morgan, and E. E. Skinner. Messrs. Bratton and Skinner received prizes.

THE Spanish Ministry of Justice has arranged for the establishment in Madrid, Barcelona, and Seville, of laboratories of forensic medicine. After the middle of September, analyses which may be ordered by magistrates will be conducted in the new institutions—a provision enabling experts nominated in the interests of accused persons to be present during the performance of such analyses.

It is reported than an American whaling vessel captured in Suez Bay, during a recent cruise among the West Indies, a whale from which thirty pounds ($10,000 worth) of ambergris was taken.

## BIBLIOGRAPHY.

**American Medicinal Plants**: An Illustrative and Descriptive Guide, etc. By **Millspaugh**. Boericke & Tafel, New York and Philadelphia.

The fifth fasciculus of this serial, just issued, contains illustrations and text of the following subjects: *Aesculus glabra*, *Absinthium*, *Ambrosia*, *Anagallis*, *Aryemone*, *Artemisia vulgaris*, *Arum dracontium*, *Chenopodium anthelminticum*, *Cistus*, *Collinsonia*, *Convolvulus arvensis*, *Euphorbia hypericifolia*, *Euphorbia lathyris*, *Helonias*, *Humulus*, *Hydrophyllum virginicum*, *Hypericum*, *Lachnanthes*, *Lactuca*, *Leptandra*, *Lilium superbum*, *Lycopus*, *Purtherum*, *Phaseolus*, *Polygonum acre*, *Ptelea*, *Ranunculus sceleratus*, *Salix purpurea*, *Sinapis alba*, *Solanum nigrum*.

Like the parts which have preceded it, this one is issued in portfolio. The sixth and final portion is announced as well advanced towards completion. Each part costs six dollars, and the whole will form one of the most beautiful publications of this character which has appeared in this country.

**Manual for the Use of Boards of Health of Massachusetts**, containing the Statutes Relating to the Public Health and the Decisions of the Supreme Conrt of Massachusetts Relating to the Same. Prepared by Direction of the State Board of Health. Boston: 1886, pp. 117, 8vo.

According to this very comprehensive *resumé*, registration of vital statistics appears to have been first established in Massachusetts by a colonial law of 1639. The compilation of similar laws enacted since has been made up to 1882 by Mr. George F. Piper, and to this work the subsequent laws have been added and the whole rearranged as far as needed.

**Papers in Penology.** Reformatory Press, Elmira, N. Y., pp. 112, 12mo.

This pamphlet contains eight papers on subjects connected with prison management and the moral reformation of prisoners, and is an example of the handiwork of inmates of the State Reformatory in Elmira, N. Y.

**The Healing of Arteries after Ligature in Man and Animals.** By **J. Collins Warren**, M.D., Assist. Professor of Surgery, Harvard University; Surgeon to the Massachusetts General Hospital, etc. New York: William Wood & Co., pp. 184, 8vo, 12 plates. $3.25.

The author has brought together into one monograph the results of much labor which has been heretofore directed towards the solution of the various. phases of this subject, and has combined, with these materials, his own extensive observations conducted in the pathological laboratory of Harvard University. The whole has been published in elegant fashion.

**The Pacific Record of Medicine and Pharmacy.**

The first number of this new monthly publication was issued on the 15th of August, in San Francisco. Charles W. Moore, M.D., is the editor. It covers thirty-two pages with text, of which four are in Spanish. The first number is a very creditable production indeed, and the journal is worthy of a liberal support.

**Theo. Ricksecker, Perfumer**, pp. 68, 12mo.

This is a pretty publication by the well-known New York manufacturer, who always shows taste in whatever he does. It is mainly descriptive of the various packages in which his wares are offered to the trade.

**Annual Report** of the Chief of the Bureau of Statistics on Foreign Commerce of the United States for the year ending June 30th, 1886. Washington, pp. 99, 8vo.

**The Medical Record Visiting List or Physician's Diary**, for 1887. New York: William Wood & Co.

This visiting list is unquestionably the handsomest and most comprehensive of any that we have seen. Seventeen pages are devoted to such facts as physicians are liable to require information upon in emergencies. The record of attendance upon patients is calculated for 30 or 60 per week, according to the size of the book. Special pages are provided for records of births, deaths, vaccinations, consultation appointments, addresses, cash accounts. etc. The work sells for $1.25 to $1.50, according to size.

The Calendar for 1887, issued by the Pope Manufacturing Co., of Boston, New York, Chicago, and Hartford, illustrates the "Columbia" bicycle and tricycle made by this firm. The design is handsome and the coloring is very rich and attractive.

**Information** on Newer Materia Medica, Standard Medicinal Products, Fine Pharmaceutical Specialties, Properties and Doses of Drugs. Epitomized for the use of the Busy Practitsoner. Fourth Edition; revised and enlarged. **Parke, Davis** & Co., Detroit, Mich., pp. 76, 8vo.

This trade circular contains much information in brief, and is fairly representative of the industry of this enterprising firm.

**Recherches des Falsifications de Deurées Alimentaires** Au Point de Vue Légal. Pp. 11, 8vo.

**Les Anciens Grés Artistiques Flamands** dans le Nord de la France, à la fin du XVIIe Siècle. Pp. 25, 8vo, with two tables and a colored plate.

**Instructions Summaires pour les Agents de la Police Répressive** en Matière d'Exercise Illégal des Professions Médicales. Pp. 45, 8vo.

The author of the above, Dr. S. A. Van Bastelair, of Mons, is a member of the Royal Academy of Medicine, President of the Belgian Pharmaceutical Association, and Honorary President of the Pharmaceutical Society of Charleroi. He has been a voluminous writer, not only upon subjects connected more or less directly with pharmacy, but likewise upon historical and archeological subjects.

**Transactions of the American Otological Society.** Nineteenth Annual Meeting, July 20th, 1886. Vol. III. Part 5. Published by the Society, 1886. Pp. 196, 8vo.

The series to which this publication belongs is highly prized by all who give attention to diseases of the ear. This number contains several valuable papers and a very comprehensive alphabetical index to the otological literature of the preceding year.

**Proceedings** of the North Carolina Pharmaceutical Association, at its Seventh Annual Meeting, held at Fayetteville, N. C., Aug. 11th and 12th, 1886, etc., etc. Pp. 126, 8vo.

We are indebted to Mr. Jas. C. Munds, of Statesville, N. C., for this report of the work of his association.

**Proceedings** of the Georgia Pharmaceutical Association, at the Eleventh Annual Meeting, held in Savannah, Ga., April, 1886, etc., etc. Pp. 40, 8vo.

To Mr. H. R. Slack, Jr., of LaGrange, we are indebted for the above-named publication.

**Proceedings** of the Illinois Pharmaceutical Association at his Seventh Annual Meeting, held in Rockford, June 8th, 9th, and 10th, 1886, etc., etc. Pp. 199, 8vo.

This voluminous report has been very ably edited by Mr. Albert Ebert, of Chicago, and is sent to us by the Secretary, Mr. L. C. Hogan, of Englewood, Ill.

**Martin's Druggist's Directory** of the United States and Canada, 1886–7. Containing Lists of the Wholesale and Retail Druggists, and various branches connected with the Drug Trade. New York and Boston: 1886, pp. 313, 8vo. $2.50.

This excellent directory, formerly published by Chas. S. Martin, is now the property of the Advertiser Publishing Co., E. A. Jones, Manager, 5 Beekman street, New York, and 105 Sumner street, Boston, Mass. This fourth edition is in many respects an improvement on its predecessors and is an indispensable work of reference for all persons in any way connected with the drug business. As a reliable guide it is the best in the market.

**Proceedings of the Ohio State Pharmaceutical Association** at its Eighth Annual Meeting, held in Springfield, June 2d, 3d, and 4th, 1886. Together with the Constitution, By-Laws, and List of Members, 1886, pp. 161, 8vo.

The published proceedings of this body show its continued prosperity, and that the business transacted was fairly representative of the state of the drug trade and of pharmacy in Ohio. The volume is nicely published in muslin covers, with good type and paper, and can be bought of the Secre- Mr. Lewis C. Hopp, of Cleveland, for fifty cents.

**Manual of Pharmaceutical Assaying.** Including Details of the Best Methods of Determing the Strength of Crude Drugs and of Galenical Preparations. Designed especially for the use of the Student and of the Practical Pharmacist. By **A. B. Lyons**, M.D. Detroit: D. O. Haynes & Co., 1886, pp. 151, small 8vo.

Much need exists among American pharmacists for a work such as Dr. Lyons now offers to them, for the increasing demand for pure drugs and the increase of competition, which tends to depreciate their actual value, renders it more obligatory than ever that the pharmacist should be able to form some estimate of the real nature of his wares. The author is eminently competent to prepare a practical guide of this nature, and so far as we are able to judge from an examination of this work, it is worthy of him. It contains most of the recent advances made in this branch of chemistry, and is issued in excellent form. Sent by mail to any address on the receipt of $1.25.

**Chemical Lecture Notes.** Taken from **Prof. C. O. Curtman's** Lectures at the St. Louis College of Pharmacy. By **H. M. Whelpley**, Ph.G., Quiz-Master of Chemistry and Pharmacognosy in the St. Louis College of Pharmacy. St. Louis, Mo.: Published by the Author, 1886, pp. 143, 8vo. Price, $1.00.

The first 84 pages are devoted to chemical physics, a branch in which most students of medicine and pharmacy are deficient. The remainder relates to chemistry proper. The whole is intended as an outline of studies which should be essential in the curriculum of students in colleges where chemistry and pharmacy are taught. Numerous illustrations are provided, and the text is sufficiently in detail to render the subject comprehensible without increasing the size of the work beyond appropriate limits.

American Druggist

Vol. XVI. No. 2. NEW YORK, FEBRUARY, 1887. Whole No. 152.

[Original Communication.]

# THE DISPENSATORY OF VALERIUS CORDUS.

From a wood-cut by Jost Ammann, in "*Eygentliche Beschreibung aller Stände auf Erden*," by Hans Sachs. Printed by Sigm. Feyerabend, in Frankfurt a/M. 1568.

In these days of activity upon the field of pharmaceutical history, it will not be without interest to give a concise account of the origin and progress of the first dispensatory or pharmacopœia published in Germany, by authority of the government.

This work, which corresponds to our present notion of pharmacopœia, was composed by Valerius Cordus, and bore the title "*Pharmacorum* omnium quæ quidem in usu sunt *conficiendorum ratio. Vulgo vocant Dispensatorium* pharmacopolarum *Ex omni genere bonorum authorum, cum ueterum, tum recentium collectum et scholiis utilissimis illustratum, in quibus obiter, plurium simplicium, hactenus non cognitorum, uera noticia traditur. Authore Valerio Cordo* [etc., etc.]. *Norimbergæ apud Joh. Pretrejum.*[*]

There are two editions of this work, issued by the same printer, both without date. The edition having the title here quoted is in quarto; there is also a duodecimo edition, in which the words which are printed above and in the note in Roman, are omitted. The latter is supposed to have been the original edition. From various considerations it is tolerably well settled that both of these editions appeared in 1546.

Valerius Cordus was born February 18th, 1515, at Simtshausen, in Upper Hessen, where his parents (who resided at Erfurt) were at the time on a visit. His father, Euricius Cordus, was appointed professor of medicine at Marburg, in 1527. At this place, both Valerius and his brother Philippus were matriculated as students of medicine, having obtained the baccalaureate degree in 1531. Valerius then went to Wittenberg, where he soon established himself as teacher. In 1543 he made a journey to Italy, for the purpose of study, but never returned, as he died at Rome, on September 25, 1544, aged 29 years.

From the copperplate title-page, by C. N. Schwartz, of the Dispensatory of Valerius Cordus, Nuremberg, 1666.

The accounts given of the Dispensatory by various authorities up to within a year or so from the present time have been very incorrect. Redwood, for instance, states that the first edition was published in 1524, and that subsequent editions appeared in 1535 and 1542. The fact is, Cordus never lived to see the publication of the work.

While he was on his way to Italy, he visited Nuremberg, where he made the acquaintance of prominent scholars and physicians. Here it became known that he had compiled a work, from the best authorities, on old and new remedies, which had already been introduced in manuscript in some cities of Saxony. He was, therefore, asked to furnish a copy for the apothecaries of Nuremburg. Cordus, however, thought that the latter would hardly accept the work as a standard without the sanction of the authorities, and he therefore presented a copy to the Senate of the city for examination and legalization. The Senate accepted it with thanks and handed it over to a committee of physicians, so that if anything should be found that might require alteration, this might be done in consultation with the author. The committee declared the work the most perfect and best of its kind in existence, whereupon the Senate resolved to have it printed, and passed an ordinance that the apothecaries should, in the future, prepare their medicines exclusively after the new standard. Before the book was printed, however, the author died in Italy, and the work was subsequently edited as "a monument in honor of the distinguished and industrious young scholar Valerius Cordus." All these data are taken from the preface to the first edition. It is certain, therefore, that the book was published *after* the author's death, though many previous writers have given the year 1535 as the date of the first issue.

It has been recently ascertained, that Valerius Cordus visited Nuremberg during a journey in 1542.

The number of copies ordered by the Senate to be printed was one hundred, of which each pharmacy was to receive one, while the others were ordered to be kept at the office of the Senate. And at a subsequent session the sum of one-hundred gold-gulden and the payment of his tavern expenses was ordered to be paid to him. This was in October, 1543, but no mention is made of the dispensatory in the documents of 1544 or 1545. It came up for discussion again on June 28, 1546, and the work was immediately taken in hand, so that it was issued from the press on Sept. 7, 1546. Under this date there appears, also, in the official record, the last mention of the Dispensatory, in the following ordinance: [The quaint mediæval style of German in which this and similar documents are written, can, of course, not be reproduced in the translation.]

"Whereas the apothecaries' code, heretofore prepared by Dr. Cordus, has been printed in accordance with the order recorded on folio 208, it is resolved, that a copy be furnished to each physician and to each apothecary, with the order to follow it in all cases. And, whereas, the "Albrecht" apothecary[*] has first made a copy of it, he is to receive a honorarium of ten gulden. (Signed) Herr Hyronimus Baumgärtner.

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[*] *Translation.*—"Manner of preparing all medicines, so far as they are in use. Commonly called "The Dispensatory of Apothecaries." Collected from every class of good authors, both ancient and modern, and illustrated with most useful commentaries, in which here and there true information on several hitherto unknown simples is furnished. By Valerius Cordus." The rest of the title is: "Item de collectione, repositione et duratione simplicium. *De adulterationibus quorundam simplicium. Simplici aliquo absolute scripto, quid sit accipiendum* Ἀντιβαλλόμενα, *id est, Succedanea, sive Quid pro Quo. Qualem virum pharmácopolam esse conveniat. Cum Indice copioso.*" [Likewise on the collection, keeping, and duration of simples. On the adulteration of certain simples. At the conclusion of any one simple [will be found stated] what should be taken as substitutes—that is, which for which [*quid pro quo*]. What kind of person the apothecary should be. With a copious index."

[*] That is, the incumbent of the establishment then known as the "Albrecht Apotheke."

The Dispensatory appears to have attracted much attention immediately after its appearance. It was often reprinted, both at Nuremberg and elsewhere. There is a Paris edition of 1548, three of Lyons (1552, 1559, 1599), two of Venice (1556, 1563), etc., etc. [One of us possesses the editions of Nuremberg, 1592; and that of 1612, to which is appended a folio pamphlet containing Laws and Regulations for physicians and apothecaries enacted by the Senate on May 27th, 1612. This same copy, like many others existing elsewhere, has a large number of leaves of writing paper bound in at the end of the text, on which are entered, in manuscript, a great number of formulæ introduced in the course of time.]

Like all scientific works of the middle age, the Dispensatory of Cordus is written in Latin. The titles of compound medicines are chosen either from one or another of the constituents, or according to its properties, or according to the original author, or according to the (supposed or true) effect.

For instance, a plaster which contained among its constituents the *juice*, or rather mucilage, of fenugreek seed, linseed, and marshmallow root, was called "Emplastrum diachylon," meaning "plaster with juice" (*διά*, Greek preposition, "through;" in later language also "with;" *χυλῶν*, gen. plur. from *χυλός*, juice). Another plaster containing vinegar and saffron was named "Emplastrum oxycroceum," meaning "acid saffronated plaster." In the course of time, many of these preparations suffered alterations in composition, and it often happened that the very substances which originally gave rise to the name were omitted. Our present Emplastrum diachylon, for instance, no longer contains any juice or mucilage. And so in the case of many others. Some of the names have, in the course of time, become veritable etymological riddles, which have occasionally been solved through philological acumen. Some of them are still obscure. One of the most enigmatical, to etymologists, has been the word *opodeldoc*. Mr. Hermann Peters, of Nuremburg (see literary notice at the end of this article) suggests the following solution of the riddle. He thinks that the word is derived from constituents of the *old* opodeldoc plaster (quoted for instance in the last Nuremberg edition of Valerius Cordus of 1666). This formula, namely, does not contain a single one of the constituents of modern opodeldoc, but the principal components are: Opoponax, Bedellium (= Bdellium), and "Aristoloch" root. If we take the first syllable of the first word (*opo*), the middle syllable of the second (*del*), and the last syllable (*loch*) of the third, we have *opo-del-loch;* and this is the form in which Paracelsus writes the word. Later it was altered to opodeltoch and opodeldoc.

Interior of a pharmacy in the time of Valerius Cordus. From a wood-cut in "*Reformation der Apotheken*," by Otto Brunfels. Printed by Wendel Riel in Strasburg, 1666.

Simples are mentioned by Cordus only in those cases when they require a special preparation to be suitable for use. The principal contents of the work are formulæ taken from the Greek, Roman, and Arabic physicians, chiefly from Dioscorides (of Anazarba in Cilicia), Galenus (of Pergamus), Rhazes (of Bagdad), Avicenna (or Ibn Sinâ), Mesua (the younger), and Nicolaus Præpositus (of Salerno).

The formulæ generally contain only vegetable or animal constituents (still there are quite a number, particularly among plasters, which contain minerals). All these mixtures belong to that class of preparations which have received the name galenical, after the celebrated Roman physician Claudius Galenus who attributed much value to compound or complicated preparations. So for instance, the formula for Confectio Damocratis, which has 55 constituents in the Dispensatory of Cordus.

*Note.*—The preceding notices are based partly upon Flückiger, "*Pharmacognosie des Pflanzenreiches*," 2d ed., pp. 993 sqq., but mostly upon the recent work of Mr. Hermann Peters (of Nuremberg): "*Aus Pharmaceutischer Vorzeit. In Wort und Bild.*" 8vo, Berlin, 1886, which gives a most interesting account, based on extended researches in old archives, etc., of the history of pharmacy in olden times, and is an artistic treasure, such as is rare among pharmaceutical literature.—ED. AMERICAN DRUGGIST.

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[ORIGINAL COMMUNICATION.]

## A NEW TEST FOR COCAINE.

### BY HENRY MACLAGAN.

THE permanganate test of Dr. Giesel will hardly ever be accepted as a practical one, that is to say, one for every-day use, the facility with which that salt is reduced by such an infinite variety of substances being a serious objection to it. There is not much doubt, however, that the amorphous alkaloid is instantly destroyed by potassium permanganate, while the crystallizable cocaine forms a salt which remains intact for a considerable period; in fact, the amorphous portion can be almost if not quite entirely removed by this means and the pure crystals obtained.

It is scarcely possible to produce for general use a cocaine salt which is *absolutely* free from the amorphous, and the least trace of this, even a fraction of one per cent, would cause reduction of the permanganate and possible condemnation, especially in the hands of those not fully posted.

The writer has been using a test for the past six months, discovered accidentally, which has never yet failed to give satisfactory results. If about one grain of hydrochlorate of cocaine be dissolved in about two fluid ounces of water, one or two drops of water of ammonia added, and the sides or bottom of the containing vessel rubbed with a glass rod, well marked striæ will appear where the rod has touched, and shortly after, flocks of precipitate will form and slowly subside, leaving the liquid clear and bright as at first. If the amorphous salt is present, even in moderately small proportions, no striæ nor precipitate will form, and the liquor will remain milky for a long time, the surface having a more or less oily appearance.

If the amorphous alkaloid is present in considerable quantity, which is nearly always the case when the salt is made from the mixed alkaloids just as obtained from the leaves, it may be partially separated by dissolving about thirty grains in two ounces of water, and adding slowly, drop by drop, a five-per-cent solution of ammonia, stirring constantly, until a flocculent precipitate begins to appear. The alkaloid will be found in sticky masses on the glass and rod. It may be obtained in a very pure state by repeated fractional precipitation, stopping each one at the point where the liquor begins to lose its milkiness, and loose white flocks appear. The alkaloid obtained in this way, after being deprived of coloring matter if necessary, is a clear, transparent substance of a slightly yellowish color, resembling Canada balsam, but of firmer consistence, and may be lightly touched with the fingers without sticking, at ordinary temperatures. A specimen over six months old fails to show the least sign of crystallization. The hydrochlorate of this alkaloid has the appearance of a varnish-like mass, and cannot be reduced to powder. According to the experience of the writer, the average proportion of this alkaloid in coca leaves is about fifteen per cent of the total alkaloidal yield.

LABORATORY OF MCKESSON & ROBBINS,
NEW YORK, January 17th, 1887.

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[ORIGINAL TRANSLATION.]

## THE ACTIVE PRINCIPLES OF DIGITALIS AND THEIR THERAPEUTIC SUBSTITUTES.

IN a recently published work by Prof. P. C. Plugge, of Groningen, on the most important remedial agents, which has been translated by Prof. Eduard Schaer, of Zürich (see note),* the subject of the active principles of digitalis has received a critical and perspicuous treatment. We are sure of rendering a service to many of our readers by an abstract of this portion.

Besides the usual constituents of plants, there have been found in digitalis the following principles:

Inosit (Marmé), antirrhinic acid (Morin), digitalic acid (Morin), digitaleinic acid (Kosmann), and a very poisonous, nitrogenized substance, the real active principle which Homolle (1845) named digitalin.†

In the course of time, however, it was ascertained that this digitalin was not a simple substance, but a mixture of various substances, which have not always been designated with the same names by different authors.

The article prepared by Homolle and Quévenne, which was known in the market as "French digitalin," consisted, as was acknowledged by these authors themselves, of a mixture of three different substances, namely:

"*Digitalin*" (insoluble in ether-alcohol), "*Digitaline*" and "*Digitalose*" (both soluble in ether-alcohol).

The "German digitalin" was at first designated by Walz as "digitalosin," but afterwards he used the name "digitalin." And this was reported by Walz to be a compound of the following constituents:

*Digitalin* (which when treated with acid is split into glucose and paradigitalein and later into digitaliresin). *Digitaletin.* *Digitaloin* (or digitaloinic acid). *A-* and *β-digitalacrin.* *Digitalis*-fat.

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* Die wichtigsten Heilmittel in ihrer wechselnden chemischen Zusammensetzung und pharmakodynamischen Wirkung, übersichtlich dargestellt von Dr. P. C. Plugge, Prof. an der Reichsuniversität in Groningen.—Mit Bewilligung des Verfassers übersetzt von Eduard Schaer, Prof. der Pharmacie am Eidg. Polytechnicum zu Zürich. 8vo. Jena, 1886 (Received from Prof. Schaer).

† In accordance with prevailing English and American custom, we write the names of all alkaloids with the termination *ine;* and the names of all glucosides or other indifferent principles with *in*. In the case of the principles of digitalis, we have, at present, no occasion to use the termination *ine*, as none of the principles so far obtained from it is a true alkaloid.

Nativelle prepared from digitalis leaves a very active body, which he reported to contain *Digitaleïn*, *Digitalin*, and *Digitin.*

These substances received still other names from Wiggers, as will be seen by the following comparison:

*Digitaleïn of Nativelle* is the digitalin ("digitalinum activum") of Wiggers, a very active, crystalline substance.

*Digitalin of Nativelle* is the digitaleïn ("digitalinum in crystallis") of Wiggers, likewise an active substance, but amorphous.

*Digitin of Nativelle* is the "digitalinum passivum" of Wiggers, and is sometimes also called "substance cristallisée inerte."

In view of the great confusion produced by this large number of differently used names, which could be largely swelled by an addition of the names of the decomposition products, it became very desirable to subject digitalis to a new investigation, and to finally establish names for such principles as could be recognized as definite individuals. This investigation was conducted by Schmiedeberg, who established the presence of the following well-characterized constituents, all free from nitrogen:

*Digitonin* ($C_{21}H_{52}O_{17}$), a substance not possessing the characteristic effect of digitalis, but in properties and effect greatly resembling saponin. Digitonin is a glucoside, which is split by boiling with dilute acids into sugar and two amorphous substances, *digitoresin* and *digitoneïn.* Digitonin is almost insoluble in absolute alcohol.

*Digitalin* ($nC_5H_8O_2$), a glucoside, very difficultly soluble in water and very hard to crystallize. This substance. treated in alcoholic solution with hydrochloric acid, is split into glucose and *digitaliresin.*

*Digitalein* differs from the preceding glucoside chiefly by its ready solubility in water and its amorphous condition. It is easily soluble in absolute alcohol. In effect it agrees with digitalin, and yields, when treated as there stated, likewise *digitaliresin.*

*Digitoxin* ($C_{21}H_{32}O_7$). This easily crystallizable substance, which is *not* a glucoside, is almost completely insoluble in water, but, nevertheless, the most powerfully active constituent of digitalis. On boiling its alcoholic solution with dilute acid, *toxiresin* is produced.

The three last named of these substances have the physiological effects characteristic of digitalis, with only small qualitative differences between them. The last-named substance, however, viz., *digitoxin*, is very different from the others, *quantitatively*, as it is much more powerful.

The decomposition products of these principles are partly active and partly inert. [They are omitted here.]

The above enumerated constituents of digitalis are probably not always present in the leaves in the same proportions, and as they are of very varying solubility in different menstrua, they are no doubt present in very varying quantities in the different pharmaceutical preparations, such as the infusion, extract, tincture, vinegar, etc., of digitalis. The aqueous preparations will naturally contain the bulk of the *digitalein* and portion of the more difficultly soluble *digitalin.* The *digitoxin*, however, which is entirely insoluble in water, will probably be entirely absent in these preparations, but it will most likely be contained in the tincture or alcoholic extract.

In consequence of these circumstances, the various pharmaceutical preparations of digitalis are but little reliable and even dangerous. [Other authors differ in this from Prof. Plugge; they maintain that more uniform results can be obtained from a given preparation of the leaves, if well and uniformly made, than by using any of the isolated constituents.—Ed. Am. Dr.] For this reason, it is desirable to extract from digitalis its pure active principle, to carefully ascertain its maximum doses, and then to employ it in place of the drug itself. This has been attempted some time since, and such a substance has not only been put upon the market, but has even been recognized by several pharmacopœias under the name "digitalinum."

The *commercial digitalin* here mentioned, as well as the *digitalinum* of the pharmacopœias, must not be confounded with the chemically pure *digitalin* (of Schmiedeberg). "Commercial digitalin" is, like "commercial aconitine," a varying mixture of different principles of digitalis and their decomposition products. Consequently, the commercial varieties of digitalin differ in various directions, and are known under various designations. So we have a *digitalinum amorphum* (digitalin incrystallizable), very bitter and easily soluble in water; a *digitalinum crystallizatum*, in form of a white, crystalline powder or white crystals which are almost insoluble in water. We have a *German digitalin* and a *French digitalin.* There is a "soluble" and an "insoluble digitalin." Further, some are known by proper names: Homolle's, Nativelle's, Merck's, Felten's, etc., digitalin. The Austrian pharmacopœia quotes a "digitalinum depuratum, which is obtained by extracting the commercial German digitalin with chloroform.

The question then arises, which of these is the proper kind to use. This is difficult to answer; in fact it is so difficult that the utility of any of these principles of digitalis becomes very problematical, and practitioners will probably revert rather to the original drug and the infusion, than to run the risk of making a choice among the former.

According to Schmiedeberg, the commercial digitalins have the following composition:

Nativelle's crystallized digitalin contains chiefly the very poisonous digitoxin, insoluble in water, mixed with the decomposition product toxiresin and paradigitogenin.

Nativelle's amorphous digitalin consists chiefly of the resinous decomposition products digitaliresin and toxiresin.

Homolle and Quévenne's "digitalin," as well as that of Kosmann, appear to have been chiefly digitonein.

Homolle and Quévenne's "digitaline" is principally the digitalin of Schmiedeberg.

Homolle and Quévenne's "digitalin chloroformique" contains the last-named kind of digitalin, together with considerable quantities of paradigitogenin, and small amounts of digitoneïn and digitaliresin.

The water-soluble "German digitalins" made by Henn & Kittler, of Strassburg, Felten & Co., of Rüsselsheim on-the-Main, and Merck, of Darmstadt, consist of seven to eight different bodies. They contain much digitaleïn, also digitonin, digitoneïn, and two or three per cent of digitalin (Schmiedeberg's).

The above statements (given in abstract) lead to the conclusion that it is necessary to obtain from digitalis a definite active principle, representing the drug, to do away with the uncertainty of therapeutic effect inherent in the above preparatious.

Among the bodies isolated by Schmiedeberg, that which is most easily obtained in a pure state is *digitoxin.* Yet this being completely insoluble in water, and therefore liable to irregular absorption and to sudden energetic action, is too powerful an agent to be safely used. The other two bodies, which do not appear to possess this particular drawback, can be prepared in a pure state only with great difficulty, and are therefore not easily accessible.

The author is of the opinion that digitalis and its preparations should be entirely dropped, and to employ, in place of it, some active principle of corresponding physiological properties, which is at the same time easy to prepare in a pure state. In this opinion he is seconded by Harnack.

The author now gives a list of active principles which possess a physiological action similar to that of digitalis. As some of these substances have already been regularly employed as substitutes for this drug, it will be of interest to give the list:

*Nerein* (probably identical with digitaleïn) and *oleandrin*, both derived from *Nerium Oleander* L. of the family of Apocynaceæ.

*Apocynin* and *apocyneïn* from the root of *Apocynum cannabinum.*

*Helleboreïn*, $C_{26}H_{44}O_{15}$, a principle easily soluble in water, from the root and root-leaves of *Helleborus niger*, *viridis* and *fœtidus*, nat. fam. Ranunculaceæ. This has cumulative effects, like digitalin.

*Euonymin*, a crystallizable glucoside of great power. The author states that this is a constituent of the resinoid known as "euonymin" (euonyminum viride), used in the United States as a remedy in dropsy, "and which is also contained in the latest U. S. Pharmacopœia, and is derived from the bark of *Euonymus atropurpureus* Jacq.")*

*Antiarin*, $C_{14}H_{20}O_5$, the active principle of the East Indian arrow poison Upas Antjar, which is the inspissated juice of *Antiaris toxicaria* Lesch., nat. fam. Artocarpeæ.

*Thevetin*, $C_{54}H_{48}O_2$, from the seeds of *Thevetia neriifolia* Juss., nat. fam. Apocyneæ.

*Strophantin*, from the seeds of *Strophantus hispidus* D. C., or *Str. Kombe* Ol., nat. fam. Apocyneæ.

*Scillain* or *scillitoxin*, from the bulbs of *Urginea Scilla* Steinh., nat. fam. Liliaceæ.

*Adonidin*, a glucoside from the herb and flowers of *Adonis vernalis* L. This has been frequently used of late, and with good effect.

*Convallamarin*, a glucoside resembling digitaleïn in its effects, from *Convallaria majalis* L., nat. fam. Smilaceæ.

*Erythrophlœine*, the only alkaloid belonging to this group, which possesses, besides the true digitalis effect, also the tetanic power of picrotoxin or of digitaliresin. This is derived from sassy-bark, *Erythrophlœum guineense* C. Don., nat. fam. Mimoseæ.

And several others, not yet sufficiently studied.

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**Tribromide of Allyl** is prepared by treating 1 part of allyl iodide with 2½ parts of bromine. It is a colorless liquid, soluble in ether, of a density of 2.436, and boils at 217° C. It has been used successfully in hysteria. asthma, croup, etc. Dose, 2 to 4 drops in 1 to 2 C.c. of ether, hypodermically, or 5 drops in a capsule, 2 to 4 times daily.

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* This is a mistake. The U. S. Ph. does not recognize such variable preparations as *euonymin*, meaning a resinoid. The author should have expressed himself thus: "euonymin, used in the U. S. as a remedy for dropsy, which is derived from the bark of Euonymus atropurpureus, which latter drug is recognized by the latest U. S. Pharm." Euonymus *is* recognized, but not euonymin.—Ed, Am. Drugg,

[ORIGINAL TRANSLATION.]

## The Chemical Nature of Petroleum Ointment.

FROM an interesting paper, by C. Engler and M. Boehm, in *Dingler's Polytechnisches Journal* (vol. 262, p. 468), we take the following abstract, after stating that the term *vaseline* is applied by the authors (as, indeed, quite commonly on the continent of Europe) to the commercial petroleum ointments irrespective of any special manufacturer's product. The word "vaseline," according to American patent laws, is the property of a single firm, and cannot be used by others. In Europe, however, the term has long escaped the bondage of proprietorship, and is used quite promiscuously.

Regarding the chemical nature of vaseline, only a few investigations are on record. Rud. Wagner* designated it as a mixture of heptane ($C_7H_{16}$) with paraffins. Moss † regarded it as a mixture of different, easily-fusible paraffins. Miller considered vaseline and "cosmoline" (which latter is a vaseline of higher melting point) as mixtures of paraffin with volatile hydrocarbons. Naylor‡ finally showed that cosmoline contains 98.59 per cent of hydrocarbons, and that fractions of different melting points may be separated from it by fractional cooling of its ethereal solution.

Most of the investigations refer to its physical or external properties (such as solubility, resistance to acids and chemical reagents, admixture of sulphuric acid, sulphonic acids, etc.), and it is just with reference to these properties that much discussion has been had up to the present time, whether the product obtained from petroleum residues (which the authors here designate as "natural vaseline" or simply "vaseline") or a mixture of heavy paraffin oils with ceresin (which the authors designate "artificial vaseline") is preferable.§

It has long been known ‖ that vaseline may be obtained, not only from the residue of American (Pennsylvania) petroleum—from which it was first prepared—but also from those of the Galician and Alsatian petroleum. And Mendelejeff and Briel ¶ have shown that a vaseline similar to the American may also be prepared from Caucasian petroleum.

According to Gerstenberger,** the natural vaselines show slight differences in melting points and specific gravity, which are dependent upon their source and mode of preparation. In their principal properties, however, they do not differ materially. On the other hand, considerable differences have been shown to exist between natural and artificial vaselines, which should be kept in view when using the two substances practically. (Compare at end of this paper.)

The investigations of the authors refer almost exclusively to the *natural vaseline*.

This excellent base for ointments may be obtained from petroleum residues either by decolorizing with charcoal, or by "bleaching" the residues with concentrated sulphuric acid, sometimes with the addition of bichromate, and subsequent treatment with charcoal, or, finally, by distilling the bleached or unbleached residues.

Since the authors desired to examine vaseline in its natural condition, they purified it, for their purposes, merely by bone black. The treatment with sulphuric acid causes the elimination of certain groups of hydrocarbons (of the composition $C_nH_{2n}$; also some aromatic ones). And even distillation produces changes which materially affect the composition of the product.

*Preparation of Vaseline.*—The authors used for this purpose two varieties of petroleum furnished by Dr. Fedorowicz, of Ropa, in Galicia. Both of these were strongly dichroic, green by reflected, yellowish to brownish-red by transparent light, and showed the following behavior on distillation, the several figures given indicating the fractions, by volume or weight, respectively obtained at the stated temperatures:

| | Spec. Gr. | | Bel. 150°. | 150°-290°. | 290°-340°. | O'er 340°. |
|---|---|---|---|---|---|---|
| I. | 0.812. | % vol. | 30.2 | 35.9 | 5.3 | 27.7 |
| | | % w't. | 26.7 | 35.5 | 6.5 | 31.1 |
| II. | 0.820. | % vol. | 21.8 | 51.7 | 8.8 | 17.0 |
| | | % w't. | 20.0 | 51.2 | 9.4 | 18.9 |

From these oils the vaseline was prepared in two different ways:

1. By dissolving the residues in petroleum-ether, bleaching the solution with bone-black, and evaporating the solvent.
2. By bleaching the petroleum itself, and distilling until a product of the proper consistence remained.

*First Method* (*From Residues*).—As the residues, deprived of all fractions boiling below 340°, had still the consistence of syrup, another portion, about one-third, was distilled off, until the residue had the consistence of butter. One part of this was then dissolved in 7 parts of petroleum-ether of spec. gr. 0.66, and treated with 1½ parts of powdered bone-black for 1 or 2 hours. It required 17 successive operations to render the magnificently fluorescent solution as colorless as water. After distilling off the solvent with steam, the vaseline remained behind as an odorless, tasteless, and colorless oil of strong blue fluorescence, which congealed after awhile to a white, very translucent salve-like mass.* This was found to consist purely of hydrocarbons. Its melting point was 32° C. (ab. 90° F.). During cooling it exhibited not a trace of crystalline structure, nor were any signs of crystallization traceable in the precipitates obtained by cooling its hot alcoholic solution. This is contrary to Naylor's observations. But the portion previously separated from it by distillation (to render it denser), when treated in the same manner, separated numerous scales of paraffin.

*Second Method* (*From Petroleum*).—In order to avoid the laborious repeated boiling of the petroleum with bone-black, and subsequent filtering, the oil was bleached by passing it through a series of filters, arranged after the plan of sugar house filters. Each of these was about 30 inches high, 2 inches wide, surrounded with a steam jacket, and contained 1½ to 2 lbs. of bone-black. The oil became colorless usually after passing 6 of these filters, but it still possessed then a deep-blue fluorescence. Its spec. grav. had at the same time been greatly diminished.

I. from 0.812 to 0.795.
II. from 0.820 to 0.782.

In order to obtain the vaseline from these bleached oils, they were subjected to distillation *in vacuo* (at 10 to 15 *mm* pressure) up to a temperature of 250° C. The flask was immersed up to the neck in an air-bath heated to the required temperature. The yield and character of the products were as follows:

| | Yield. | Sp. Gr. | Melt. Point. |
|---|---|---|---|
| I. | 13.8 | 0.8809 | 30°-31° |
| II. | 13.2 | 0.8785 | 30°-31° |

In determining the melting point, it is preferable to use Wimmel's method,† since these substances pass from a strongly translucent into a perfectly transparent condition long before they have attained the melting point proper.

The authors then give the results of analytical determinations of the components of these products. Prepared by either method, they were found to consist purely of hydrocarbons. Even the bleached oil itself was free from oxygen or sulphur, and the oils removed by distillation are richer in hydrogen and poorer in carbon than the corresponding residues.

The authors next turned their attention to the nature of the substance abstracted by the bone-black. For this purpose portions of each of the crude oils were distilled in vacuo in the same manner as the bleached oils. The residues thus obtained, and not further purified, were found to be free from nitrogen, but contained unweighable traces of sulphur, and the following percentages of oxygen (determined by difference):

I.: 0.46%. II.: 1.29%.

Hence, the proximate results of the treatment with bone-black consists in the removal of the oxygenated compounds. Besides, the charcoal retains also certain constituents containing less hydrogen, so that the product has been rendered richer in *saturated* hydrocarbons.

*Effects of Distillation.*—In order to ascertain how much the melting point of vaseline may be raised by distilling off a portion, and also to determine whether its chemical nature is altered during this process, portions of each of the two crude oils were distilled, *in vacuo*, in fractions, until only a few drops of residue remained behind. It was thereby shown that the melting point of the *distillates* gradually rose with the temperature, while, on the other hand, the *melting point of the residue* rose only (from 30.5° to 32°-33° C.) by taking off the first fraction; subsequently, however, it *sank in a continuous ratio.* This proves that by distilling vaseline in vacuo its melting point can be raised, at most, only by 2 or 3 degrees, while on further distillation it sinks again, probably in consequence of slight decomposition.

In these experiments, it was particularly remarkable that every one of the *distillates* had a strongly *crystalline* structure, while the residues, down to the last portion, possessed the amorphous condition peculiar to vaseline.

Since the whole appearance of the distillates showed that they consisted of a mixture of solid paraffin with volatile oils, attempts were made to separate these portions. It being impossible to accomplish this by filtration or expression, the authors employed a method depending upon the fact that from an ethereal solution of the mixture alcohol precipitates the paraffin more readily than the oils. The process is as follows (and may be used on the small scale): The mixture of paraffin and oil is dissolved in the least possible quantity of cold ether, and the resulting solution is mixed, under strong agitation, with absolute alcohol, until it is completely filled with flakes of

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* *Dingler's Pol. Journ.* (1877), vol. 223, 515.

† *Jahresb. f. reine Chem.*, 1876, 1171. Compare *Proc. Am. Pharm. Assoc.*, 24, 271.

‡ *Moniteur Scientifique*, 1880, 10, 579.

§ This is a preparation of the last Germ. Pharm., entitled: *Unguentum Paraffini*, with the synonyms "vaselinum; vaseline." It is prepared by mixing 1 part of solid paraffin and 4 parts of liquid paraffin.

‖ *Chem. Centralbl.*, 1882, 819.

¶ *Jahresb. f. reine Chem.*, 1882, 1,458; 1,466.

** *Chemiker Zeit.*, 1885, 1,898.

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* It is probably in this or some similar manner that the most beautiful of all petroleum ointments, the so-called Caucasine (obtainable through McKesson & Robbins, of New York), is prepared.

† *Zeitsch. f. anal. Chem.*, 1868, 267.

paraffin. It is now strained, and the alcohol still adhering to the flakes evaporated on the water-bath. The strained or filtered liquid is then further mixed with absolute alcohol, the separated paraffin again removed, and this process repeated until no more flocculi of solid paraffin, but only oil-globules are precipitated. From the final filtrate, the ether and alcohol are removed by distillation, the residue dissolved in the least quantity of ether, and the solution (placed in a freezing mixture) treated with very little cold absolute alcohol, which causes a further separation of paraffin. This is likewise repeated until only oil separates. In order to obtain accurate results, it is advisable to subject the paraffin first separated to a renewed treatment by dissolving it in ether and reprecipitating with alcohol. The authors tested this method by employing it upon a mixture prepared by melting together 30 parts of liquid paraffin and 10 parts of solid paraffin (melting at 56° C.). The first separation yielded 16.1, and the second 9.3 parts of solid paraffin (within 7 per cent of the total). This shows that the method is available for an approximate determination of solid paraffin, while it has the advantage that it can produce no alteration in the constituents. Whether it is equally well applicable to mixtures of soft paraffins and very viscid oils remains to be seen.

While all the fractions obtained from vaseline by distillation yielded, by this method, distinctly crystalline flakes of paraffin, *undistilled vaseline*, when treated in the same manner, showed no crystalline structure whatever in the separated portions.

*Separation of Vaseline into a Solid and Liquid Portion.*—The method just described was next employed by the authors to separate the solid portion of vaseline from the liquid. In order to reduce the number of operations, a little more alcohol was added to the first prepared ethereal solution, so as to produce a thin magma. The resulting filtrate was deprived of ether and alcohol, and the process was repeated only if it was not entirely liquid. The last precipitations were also made in a freezing mixture, and the first obtained precipitates redissolved and reprecipitated as stated above.

Working in this manner, the authors obtained from 100 parts of vaseline (derived from oil II., having a melting point of 30.31° C.), 40.8 parts of solid matter, which they designate as "solid vaseline" (to distinguish it from "solid paraffin"). This had at spec. gr. 0.8836 at 20° C., and the melting point 40° C. The rest constitutes the "liquid vaseline," had a spec. gr. 0.8809, and began to congeal only at 10° C. The curious fact that the original vaseline has a lower spec. gr. (0.8785) than either of its constituents thus separated by solvent is not without precedent, since Grotowsky * has shown that certain technical paraffin oils (mixtures of paraffin and oil) are lighter than their constituents.

### Swiss Condensed Milk.

The chief seat of this now important industry is the little village of Cham, situated on the Lorze, a few miles from the lake of Zug. The chief factory there, which is the principal, all belonging to a wealthy company, concentrates daily about 60,000 litres of milk, the produce of more than 8,000 cows, and sends out from 15 to 17 millions of tins of preserved milk annually.

The company collects the milk from the farmers of the neighborhood, and pay 12 centimes per litre for it. On reaching the factory, the milk is poured through a silk filter into a large reservoir. In the reservoir it is automatically weighed and then drawn off into large copper boilers, and is heated to about 35° C. by steam. To the milk one-eighth of its weight of cane sugar is added, and when this is dissolved another automatic action carries it into vacuum pans in which it is concentrated by boiling at a temperature of 52° C. Under these conditions the constituent elements of the milk (fat, caseine, etc.) are unaffected. The milk is reduced to one-third of its volume after three hours in the vacuum boilers, and at that time it is of the consistence of a thick syrup. It is passed into great cylinders, which are kept constantly plunging into running water, and by this means it is rapidly cooled. It is then conveyed to the upper floors and poured into the metal boxes ready for it, which are immediately soldered down and packed for delivery. The vessels in which it is carried are washed, brushed, and steamed before being re-employed.

The whole of the work is accomplished by machinery, from the cutting up of the plates of tin to the soldering of the cans. So perfect are the tools that one skilled workman can solder 4,000 tins in his day of ten hours.—*Revue Scient.* and *Chem. and Drugg.*

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**An Idiosyncrasy regarding Tannic Acid** is reported in the *Practitioner*, the patient suffering attacks of difficult breathing whenever it was taken as a remedy. The theory advanced by the reporter was that in anæmic subjects the conversion of tannic into gallic acid was in some way retarded.

### APPARATUS FOR THE CONTINUOUS DETERMINATION OF SPECIFIC GRAVITY.

Upon one arm of a balance, a receiving globe, *A* is so fastened that a current of gas, or of liquid, made to enter the globe through the central tube *B B*, finds its exit by the discharge pipe *C C*.

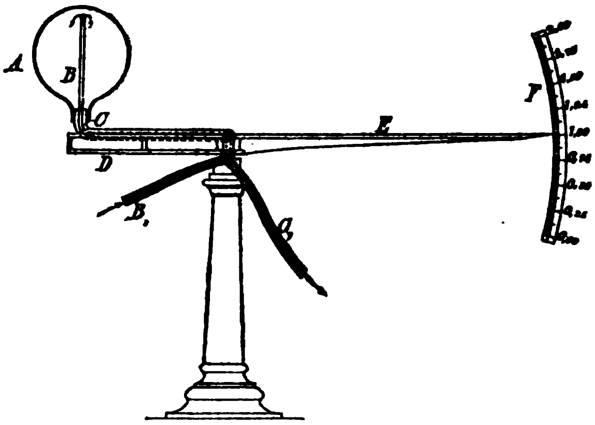
The other arm of the balance is pointed, and serves as an index against a scale expressing specific gravities. When the current of air or liquid fills the globe, the pointed arm of the balance will rise or fall according to the specific gravity of the contents, and if the density should vary at any time while the current passes, this would be indicated by a different position of the index.

The apparatus has been patented by Friedrich Lux, of Ludwigshafen (Germ. Pat. 35,430).

[The principal objection to this apparatus appears be be the difficulty of making the central bearing independent of any influence which the attached tubes exert, which, unless perfectly neutralized, would render the apparatus practically useless.—Editor Amer. Druggist.]

### Oil of Wintergreen.

It is stated that the production of oil of wintergreen has materially decreased lately, and that the prospects are that it will be still further curtailed. The receipts at New York this year have been small and somewhat irregular, resulting in a gradual advance to very firm prices. It has not been a paying article for some time past, owing to the low prices ruling at the distributing points, and the producers have consequently been making less profit than usual. But there have been other causes for the small supply this year, such as the destruction of the birch brush in Central and Western Pennsylvania, where most of the oil comes from. It is well known that very little true wintergreen oil is made, oil of birch taking its place almost entirely. The wintergreen tracts have been so thoroughly worked that the plant has not had an opportunity to renew itself. The same fate, it is said, now threatens the supply of birch, forest fires having destroyed large tracts.—*Chem. and Drugg.*



Lux's apparatus for the determination of specific gravity.

[Note by Ed. Am. Drugg.—It is likely that the supply of natural oil of wintergreen or oil of birch will soon cease to be of any commercial importance, since the artificial oil, deprived of the useless hydrocarbon, has been introduced. This product, the pure gaultherol, is of such a quality and uniformity that it will, undoubtedly, replace the natural product. Besides, it can be sold at prices which make the distillation of the natural oil entirely unprofitable.]

### New Method of Determining Uric Acid.

This method is based on the almost absolute insolubility of silver urate in ammonia. The urine (after removal of albumin, if present) is mixed with sodium bicarbonate, which is found to prevent reduction of silver, then with ammonia and ammonio-nitrate of silver. The gelatinous precipitate is best collected and washed on an asbestos pressure-filter. After thorough washing, it is dissolved in nitric acid and the silver determined by Volhard's sulphocyanide methods: 1 C.c. of centinormal sulphocyanide corresponds to 0.00168 gramme of uric acid. Test analysis showed errors of deficiency of only 1 or 2 milligrammes. The author ascribes the irregularity in the composition of silver urate, found by Salkowski, partly to the simultaneous precipitation of ammonium magnesium phosphate, and partly to the fact that Salkowski overlooked the reduction of the silver, the amount of which varies with time and temperature.—*Zeitsch. Anal. Chem.*, 25, 165 and *J. Chem. Soc.*

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**Rust-Stains on Nickel-Plating** may be removed by thoroughly greasing, and, after several days, rubbing with a cloth moistened with water of ammonia. Any visible spots may then be moistened with dilute hydrochloric acid and immediately rubbed dry. Washing and the use of polishing-powder complete the process.

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* *Zeitsch. f. Berg-, Hütten- und Salinenwesen* (1876), 24, 42.

[ORIGINAL TRANSLATION.]

## THE RELATIVE MERITS OF THE PRINCIPAL URINARY TESTS.[*]

(Continued from page 18.)

### II. REACTIONS FOR ALBUMIN.

*General Rules.*—It is always necessary to assure one's self that the urine, which is to be examined, is free from substances *which themselves contain albumin*, such as menstrual blood, fæces, sputa, etc.

Before the urine is examined, it should be filtered, if necessary, by passing it through one or more filters until it is perfectly clear. Since much depends, in certain cases (contracted kidneys, etc.), upon the discovery of very small quantities of albumin, this precaution should never be omitted. For this reason, it is advisable to compare each portion, after the reaction, with a sample of the filtered but unchanged urine, so as to be able to discover even the faintest kind of opalescence. This is done in the best manner by holding both samples, side by side, partly against the light and against the dark coat sleeve of either arm.

*Review of the several Albumin Tests.*[†]

1. *The Nitric Acid Test.* (*Heller's Test.*)

Introduce pure nitric acid into a test-tube or cognac-glass, and place upon it, by means of a pipette, a layer of the urine, taking care that it does not mix with the acid, but remains floating on the surface. If albumin is present, a ring-shaped cloud or turbidity will form at the point of contact.

*Criticism.*—The test is *not quite certain*, since urates may produce the same reaction. To distinguish the albumin from the latter, the urine is gently warmed, when the urates will dissolve. Other means of distinguishing the two reactions are held by Dr. Penzoldt to be not quite free from objections. Another possible cause of the reaction may be the fact that balsam of copaiba had been administered to the patient. In this case, the cloud is soluble in alcohol.

While the test is not quite certain, on the other hand it is *very sharp*. Even traces of albumin still produce a ring, but it requires more or less time for its formation. The test is also very easy of execution, though some care is required in introducing the urine, and also in applying gentle heat, or adding alcohol to test the character of the ring.

2. *The Test by Boiling, with addition of Nitric Acid.*

Mix the urine with about one-fifth (⅕) of its volume of nitric acid, and heat to boiling. If a precipitate or a turbidity makes its appearance, albumin is present.

*Criticism.*—The reaction is certain, provided the turbidity, etc., makes its appearance immediately after heating. If the precipitate or turbidity appears only after some time, it may be caused by other substances. The test is also quite *sharp*. Sometimes the nitric acid causes a darker coloration which interfers somewhat with the clearness of the reaction. Yet nitric acid is preferable to acetic acid, because an excess of the latter is capable of redissolving the albumin. Finally, the test is sufficiently easy of execution, though the necessity of using heat generally compels the physician to perform the test at home instead of at the house of the patient.

3. *The Test with Acetic Acid and Sulphate of Sodium* (*Panum's Test*).

Add to the urine a few drops of acetic acid, then an equal volume of concentrated [saturated] solution of sulphate of sodium (Glauber's salt), and boil. If albumin is present, a precipitate or cloudiness will be produced.

*Criticism.*—This test is among the most *certain*, though it is exceeded by others in *sharpness*. It often fails to show traces of albumin. The reason of it is probably the unavoidable dilution of the urine through the addition of the test-liquid. Regarding ease of execution, it has no advantages over others.

4. *The Test with Acetic Acid and Chloride of Sodium* (*Heynsius' Test*).

First add to the urine some acetic acid, then a saturated and filtered solution of chloride of sodium, and boil.

*Criticism.*—This reaction is regarded by Dr. Penzoldt as *certain*, if the turbidity occurs immediately after boiling. A later occurrence of the turbidity is often noticeable, even with normal urine. Regarding *sharpness*, it is far ahead of other tests, especially that last mentioned. It is, however, not any easier of execution than others.

5. *The Test with Acetic Acid and Ferrocyanide of Potassium.*

Acidulate the urine strongly with acetic acid, then add, without warming, a few drops of solution of ferrocyanide of potassium. In presence of small quantities of albumin, the turbidity occurs only after some time.

*Criticism.*—This is one of the most *certain* tests, as peptones are not precipitated by it. In *sharpness* it is probably not inferior to any. It is also very easy of performance, although it is rather inconvenient for the physician to carry about with him the liquid reagent.

6. *The Test with Citric Acid and Ferrocyanide of Potassium or Sodium.*

Pavy recommends tablets of citric acid and of ferrocyanide of sodium, which are merely to be powdered, the urine being then poured on.

*Criticism.*—This test has been designed evidently for the purpose of rendering the preceding one (No. 5) more easy of application at the bed-side. The results which Dr. Penzoldt obtained by trying these reagents, either separately or when previously fused together, were unfavorable, either a cloudiness or an opalescence making its appearance even in normal urine. He, therefore, does not recommend it, for the present at least.

7. *The Test with Hydrochloric Acid and Chloride of Sodium.*

Roberts recommends a saturated solution of chloride of sodium in diluted hydrochloric acid (5 of acid to 100 of water). A layer of this is to be put into a test-tube, and a layer of urine to be poured on, when there will be formed a ring-shaped cloud as in Heller's test (No. 1).

*Criticism.*—Regarding certainty and sharpness, this test appears to be equivalent to Nos. 3 and 4. Otherwise, however, it does not seem to offer any special advantages.

8. *The Test with Metaphosphoric Acid.*

According to Hindenlang, a small piece of glacial phosphoric acid (in sticks) is dissolved in a little water. The piece need only remain in the water a few minutes to produce a solution of sufficient strength. This solution is then added to the urine. In practice, it is stated to be preferable to add the piece of the acid directly to the urine. A cloudiness of precipitate will occur immediately.

*Criticism.*—According to the author of the test, metaphosphoric acid also precipitates peptones, but is said not to yield precipitates in normal urine. In many repeated trials with normal urine, both Dr. Penzoldt and Dr. Vetlesen have always observed either opalescence or (in most cases) a recognizable or even decided turbidity, no matter how the test was performed, though the employment of the solid acid usually produced more turbidity. Since other experimenters have likewise noticed this turbidity to be produced in most cases, even when other reactions proved the absence of albumin, peptones, or mucin, the test is to be regarded as not sufficiently *certain* to be of general use in practice.

9. *The Test with Carbolic Acid.*

Méhu recommends the following method: Mix urine with 2 to 3% of its volume of nitric acid, and then add 10% of a solution consisting of 1 part of crystallized carbolic acid, 1 part acetic acid, and 2 parts of 90% alcohol. Shake well and set aside.

*Criticism.*—The certainty of this test does not appear to Dr. Penzoldt to be free from doubt. On repeatedly testing normal urine, he observed a cloudiness after adding the carbolic solution (which may possibly have arisen from globules of carbolic acid that became separated), which was almost, though never entirely, cleared up on boiling. As the test has no special practical advantages, it will not be missed if it is dispensed with.

10. *The Test with Picric Acid* (*Trinitrophenol*).

This test, which has long been known, and has recently been again recommended by G. Johnson, is performed either by adding a few drops of a saturated solution of picric acid, or simply a few crystals of the latter ("about the size of a pea to every 5 C.c. of urine") to the urine to be tested. A cloudiness making its appearance within a few minutes is caused by the presence of albumin. If the cloudiness occurs later, no conclusion can be based upon it.

*Criticism.*—According to Dr. Penzoldt, the test is *certain*, as he could never obtain it with normal urine. It is also one of the most searching in existence. Besides, it is very simple, particularly if crystals of picric acid are used. Nevertheless, he thinks that if only traces of albumin are present some care is needed in executing the test. It occurred sometimes that, if too little of the picric acid was taken, traces of albumin were not recognizable. On the other hand, when too much of the acid is added, the undissolved portion of the crystals renders observation difficult, and in such cases an opalescence was noticed even in normal urine. To eliminate this uncertainty, only perfectly pure crystals of picric acid should be used. Dr. Penzoldt adds that, "owing to its explosive character, only small quantities should be carried about him by the physician."

[There is a mistake here. Picric acid is not explosive, and even when very strongly heated, it only deflagrates. But in combination with certain other substances, or in form of picrates, it is a very powerful explosive, requiring, however, heat or concussion.—ED. AM. DR.]

11. *The Test with Tannic Acid.*

Almén recommends a 2% solution of tannic acid in weak alcohol, which is to be added to urine in the proportion of 1 volume of the former to 5 of the latter. Normal urine is said to remain "usually" unchanged. In very concentrated urine, urates are precipitated, but these are stated to be again dissolved on heating.

*Criticism.*—Every normal urine tested by Dr. Penzoldt in this manner was rendered very turbid. This turbidity cleared up somewhat on boiling, but always remained quite distinct. Consequently, the test is to be regarded as *uncertain.*

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[*] Abstract from the pamphlet of Dr. F. Penzoldt, "Aeltere und neuere Harnproben und ihr praktischer Werth." 8vo, Jena, 1886.

[†] Compare with this chapter the results obtained by the Clinical Society of ondon which were published by us, in abstract, on page 175 of our last volume.

12. *The Test with Trichloracetic Acid. Raabe's Test.*

Add to the urine one or more crystals of trichloracetic acid. This will dissolve at the bottom, and at the place of contact of the two liquids there will be formed a distinct, sharply defined turbid zone.

*Criticism.*—According to Raabe, normal urine does not produce a reaction, though an excess of urates may cause turbidity. Dr. Penzoldt used Kahlbaum's trichloracetic acid. This produced in entirely normal urine a very faint, though distinctly recognizable mist-like turbidity, which did not disappear by heat. Even when the acid was previously dissolved and filtered, an opalescence was obtained. (This has since then been confirmed by others.) It will therefore be necessary to use this test with great caution.

13. *The Test with Potassio-Mercuric Iodide* (*Geissler's Albumin Test Paper*).

This test, which was known already before Geissler, has been recommended by the latter in the form in which it is used in England [by Dr. Oliver; see our last volume, page 175]. Sheets of thick filtering paper are treated with concentrated citric acid solution, and dried. Other sheets are similarly charged with a 3% solution of corrosive sublimate mixed with 12 to 15% of iodide of potassium. A piece of the acid test-paper is first put into the urine to be tested, and subsequently a piece of the other paper; the whole is then shaken. After a short time, a turbidity or precipitate will be produced.

*Criticism.*—On testing numerous specimens of normal urine, not the faintest trace of turbidity was ever observed by Dr. Penzoldt. (Dr. Vetlesen found that in about one-half the number of cases a slight turbidity made its appearance after standing for some time.) If the mixture is sharply observed, it is easy to recognize the paper fibres floating about in the liquid, which latter is perfectly clear. Such fine paper fibres are not an unusual occurrence even in filtered urine, being then derived from the filter. Hemi-albuminose and peptones are also precipitated by this test, but this is no great disadvantage. On the other hand, a precipitate of urates may be produced in concentrated urine free from albumin. For this reason, the test is *not absolutely certain.* Mistakes may, however, be avoided by diluting the urine if it contains too much uric acid, or better still, by warming it subsequently. The former remedy may be always safely employed without having to risk a failure in recognizing the presence of albumin, as the test is *very sharp.* The second remedy (warming) would render one of the great advantages of the method illusory, namely, its convenience. When very much albumin is present, the test does not, of course, afford an estimate of the quantity. Dr. Penzoldt has even noticed cases, when the reaction was more distinct in urine that contained little albumin than in such which contained larger quantities.

14. *The Test with Sodio-Mercuric Chloride* (*Stütz's Albumin Test-Capsules*).

Open one of Stütz's gelatin capsules (to be obtained from the Hofapotheke [R. Stütz] in Jena, Germany), at both ends, with a knife, and drop it into the urine to be examined. The contained reagents, viz., sodio-mercuric chloride, chloride of sodium, and citric acid,* are thereby dissolved out, and produce a cloudiness or precipitate if albumin is present, according to Fürbringer.

*Criticism.*—Fürbringer himself has already stated that that the test is *not* absolutely *certain*, since even normal urine exhibits an opalescence when treated with it. This is confirmed by Dr. Penzoldt. Besides, the evolution of very fine gas-bubbles, which disappear only after some time, and may cause confusion, renders the observation somewhat difficult. But, as the test appears to be *very sharp*, and is besides very convenient, it may be used, like the preceding, as a preliminary test at the bedside. In doubtful cases, other tests must be relied upon.

15. *The Test with Formic Acid and Chloride of Gold.*

Acidulate the urine with a few drops of concentrated formic acid, then add a few drops of a solution of chloride of gold (1 in 1,000), and warm. A rose-red to purplish-red or even blue coloration indicates albumin (Axenfeld).

*Criticism.*—It should be stated that this test has not been intended by Axenfeld for the urine. Dr. Penzoldt expected that it might be of advantage as a color-reaction in such cases where the urine cannot be filtered clear. He has, however, become convinced that it does not possess the requisite certainty and sharpness.

### *Summary.*

The most certain and sharp tests are:

1. Acetic Acid and Ferro-cyanide of Potassium (No. 5).
2. Boiling and Addition of Nitric Acid (No. 2).

Both of these are specially to be recommended for regular use at the bedside.

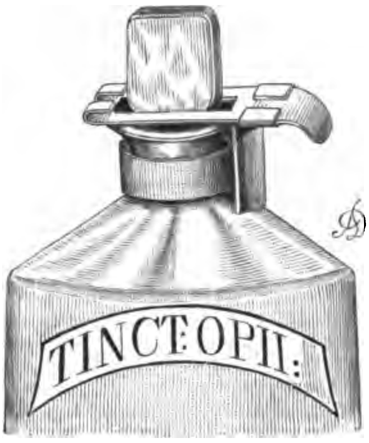
The next in certainty are the following:

3. Solution of Picric Acid (No. 10).
4. Acids in combination with saline solutions (Nos. 3, 4, 7).

In a general way, it may be stated that all the tests, particularly those most convenient for application, provided they are sufficiently *sharp*, may be relied upon when they yield negative results, as the absence of albumin is thereby reasonably well proven. If a positive reaction, however, is obtained, corroborative evidence will usually become necessary by resorting to the decisive tests enumerated at the beginning of this summary.

## STOPPER-GUARD.

THE adjoining illustration shows a stopper-guard of English origin, consisting of a band of metal with return ends, which is slipped on the neck of the ordinary shop round; then another piece of metal, into which the guard proper is fixed, is pressed down over the return ends, thus fixing the apparatus securely upon the bottle. The sliding guard moves easily in the upright, and is not liable to catch. The figure shows the stopper secured. In this position, it is impossible to remove it without notice, so that the laudanum bottle, fitted as shown, is not at all likely to be taken up and used when tr. rhei is wanted. The good points about this novelty are that no special bottle is required, and that to the customer it appears rather as an embellishment than a danger signal. The guard is made of lacquered brass, in several sizes.—*Chemist and Druggist.*



Stopper-guard.

## Pilocarpine Salts.

E. **Hardy** and G. **Calmel** have analyzed the following compounds of pilocarpine: the nitrate, $C_{11}H_{16}N_2O_2,HNO_3$, which forms rhombic lamellæ, very soluble in water, but less soluble in alcohol; the platinochloride $(C_{11}H_{16}N_2O_2)_2$, $H_2PtCl_6$, which forms somewhat soluble quadratic prisms and lamellæ; the modified platinochloride $(C_{11}H_{16}N_2O_2)_2$, $PtCl_4$, a very soluble, crystalline, yellow powder; the aurochloride, $C_{11}H_{16}N_2O_2AuCl_3$, formed in slender needles when the pilocarpine is in excess; the aurochloride $C_{11}H_{16}N_2O_22AuCl_3$, obtained in microscopic needles when the auric chloride is in excess. Both these compounds form viscous oils when heated in presence of water, and combine with only one equivalent of hydrogen chloride. The acid aurochloride, $C_{11}H_{16}N_2O_2HAuCl_4$, obtained in needles by adding a limited quantity of auric chloride to a solution containing free hydrochloric acid; the acid diaurochloride, $C_{11}H_{16}N_2O_2,2HAuCl_4$, obtained in needles or right rectangular prisms by adding excess of auric chloride in presence of hydrochloric acid; the mercurochlorides, which crystallize in slender needles and are very soluble in acids; and the hydrochloride, which forms a gummy mass. Pilocarpine itself is a viscous substance, very soluble in alcohol and water, slightly soluble in cold ether or chloroform mixed with alcohol. Pilocarpine does not act on carbonates, but with alkaline hydroxides it forms compounds which are decomposed by carbonic acid.—*Comptes Rend.*, 102, 1,116.

## Sozolic Acid (formerly called Aseptol).

THIS antiseptic is more strictly named orthoxy-phenyl-sulphurous acid. In composition it is parallel to salicylic acid, containing, however, the group sulphuryl ($SO_2$) in place of carbonyl (CO) of salicylic acid. It is a reddish syrupy liquid, of sp. gr. 1.40, with a feeble and not disagreeable odor. It dissolves in water in all proportions, congeals at 8°, and distils at 130°. With ferric chloride it gives the same violet coloration as salicylic acid. Though a decided acid, it had not the corrosive action of phenol. It is said to arrest absolutely every fermentation, diastatic or fungoid, to a much greater degree than phenol and other well-known antiseptics. It has been recommended for photographic purposes, especially for mounting pastes. The advantages of sozolic acid lie chiefly in its great solubility and freedom from odor—qualities which, together with the absence of corrosive action, should make it suitable for toilet preparations, such as mouth washes.—*Chem. and Drugg.*

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* That is, a certain amount of mercuric chloride is intimately mixed with an excess of chloride of sodium, and this finally with the citric acid.

### New Test of the Purity of Sulphate of Quinine.

Dr. de Vrij proposes a new method for testing the purity of sulphate of quinine, namely, by means of neutral chromate of potassium. We translate his paper on the subject from the *Bulletin Commercial*, of November, 1886:

In order to test the purity of any quinine salt, dissolve 1 Gm. in 100 Gm. of water. Heat the liquid to boiling, and add to it 0.24 Gm. of very pure chromate of potassium,* dissolved in a little water. While adding this solution, a slight cloudiness will be noticed, which will, however, immediately disappear upon stirring with a glass rod, provided the liquid is still at a boil. It is then entirely transparent and of a yellow color. After cooling for at least twelve hours, nearly all the quinine will have separated as a well crystallized neutral chromate. Now collect these crystals upon a filter, wash them with distilled water, and dry them in the air. They contain no water of crystallization and correspond to the formula $2(C_{20}H_{24}N_2O_2)H_2CrO_4 = 766.5$. They are very little soluble in water at the ordinary temperature. At 12° C. (53.6° F.), 1 part of the salt is soluble in 2,733 parts of water, and at 16° C. (60.8° F.) in 2,000 parts. A great error will, therefore, not be committed if it be assumed that every 100 Gm. of the mother liquid remaining after crystallization will contain 0.05 Gm. of the salt, provided the temperature of the united mother liquid and washings is within 12° and 16° C. Hence by adding the calculated correction to the weight of the crystals, the true amount of quinine contained in the salt under examination will be found on calculation.

If caustic soda is added to the mother liquid left after the crystallization of the chromate, and the liquid is then evaporated on a water-bath nearly to one-half, so that a little more than 50 Gm. remain in the capsule, the liquid will be entirely transparent, and will deposit no sediment on cooling, it the quinine salt was chemically pure.

If, however, the quinine salt was not pure, the case is different, because when a quinine salt is converted into chromate, the quinine separates as a pure chromate, while the cinchonidine or any other cinchona alkaloids, if present, remain dissolved in the mother liquid. In order to estimate the alkaloids besides the quinine, it is necessary to use a larger quantity of the sample, so as to obtain at least 5 Gm. of the chromate of quinine by the process above described after collecting the separated crystals upon a filter, and washing them with water; if a little caustic soda is added to the united mother liquid and washings, two cases may present themselves, which may be stated concisely as follows:

1. If the quinine salt contained less than five per cent of cinchonidine, the liquid will remain clear.
2. If more than five per cent of cinchonidine is present, the liquid will become turbid already at the ordinary temperature.

On now evaporating the liquid on the water-bath to ⅜ of its original volume, the whole of the cinchonidine will separate, in both cases, in a crystalline form, and may be collected upon a filter when the liquid has become cold, after which it may be estimated. Generally it is cinchonidine which separates in this manner; but it is only rarely pure and contains traces of quinine or of cinchonine.

The chromate of quinine obtained in these assays is not lost, but may be employed in the preparation of *pure quinine.* For this purpose it need only be treated with water containing an excess of caustic soda (that is, somewhat more of the latter than is theoretically required to decompose the salt), care being taken that this is done at a temperature below 30° C. (86° F.), for at this temperature really pure quinine begins to cake together and at 40° C. (104° F.) it becomes plastic.

Neutral chromate of potassium may also be used to advantage for separating the quinine which is always contained in the commercial cinchonidine. For this purpose, one part of the latter is dissolved in 100 parts of water with the aid of sufficient hydrochloric acid. Having then rendered the liquid slightly alkaline to test-paper, two or three drops of a concentrated solution of neutral chromate of potassium are added and the mixture set aside for forty-eight hours. If no separation of crystals of chromate of quinine has then taken place, two or three further drops of the chromate solution are added, and this is repeated, if necessary, until no more chromate of quinine separates. The excess of chromate of potassium used in this operation must be very small, because it is necessary to avoid, as much as possible, the formation of chromate of cinchonidine, which is not stable like the quinine salt, but is rapidly decomposed. Hence, if a great excess of chromate of potassium is added to the solution of cinchonidine, the chromate of quinine which separates does not possess a bright-yellow, but a reddish color.

As the chromate of quinine is much less soluble than the tartrate and even the oxalate of quinine, the loss of quinine which is encountered while preparing the tartrate for the optical examination may be rectified by using chromate of potassium for its precipitation.

L. Rouguès, in the same journal, adds the following remarks:

"We have tried DeVrij's new method of examining the purity of commercial sulphate of quinine, and have found it to answer the purpose very well. We have been able by means of it to estimate, approximately, the quantity of quinine and cinchonidine contained in commercial sulphate of quinine. It is, moreover, much more practical than Oudemans' optical process, which is apt to yield erroneous results in the hands of an inexperienced person. We are engaged in trying the process for estimating the quinine contained in cinchona bark, and we hope shortly to be able to report a practical method of assay based upon it."

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*Pure, neutral chromate of potassium has an alkaline reaction upon red litmus paper, but not upon turmeric or phenol-phthalein.

### The Production of Gum Senegal.

The "Senegal" gum of commerce is found in the territory of the tribes inhabiting several oases between the Senegal and the Atlantic Ocean; the largest forest gum trees are those of Sabel-el-Tatack and El-Hiebar; the former produce the white gum, which is most valued; the other, the gray and red varieties. The acacia trees which grow in the desert are inferior to and have a more crooked appearance than those growing near the river, where the soil is more favorable for vegetation. The acacia of the desert rarely attains a height of more than thirty feet, and it has the shrivelled appearance which is peculiar to vegetation in these regions which are exposed to strong winds. In Western Africa there are only two seasons, the rainy and the dry one. The nearer to the equator, the longer the duration of the rainy season. In Senegambia it lasts two months, and is preceded and followed by a month of tempest. In November, the bark of the gum-tree cracks in numerous places and the gum exudes. About this time the hot winds begin to blow and the burnt trees lose their leaves, assuming the appearance they have with us during the winter. The gum dries quickly, outwardly it looks dull, but on breaking it is brilliant and shiny; it becomes very transparent if put into the mouth for an instant. About a month is required to make the tree produce its full crop. The natives then prepare for the gathering in, and the whole tribe, men, women and children, some on foot, others on horse-back, proceed to the forests. A camp is established for the duration of the crop, and all set to work. The gum collected is placed in sacks of tanned bullock hide, which are fastened by twos to the backs of camels and bullocks. The work is done slowly, there being no fear of rain; when finished, the whole tribe return, and proceed towards the banks of the Senegal, which are at a great distance from St. Louis. The merchants come to Galam, a small station situate about one-thousand kilometres from St. Louis on the Senegal, and there wait for the tribes and their crop of gum, which is generally paid for in printed calico, which the collectors resell in the interior.—*Chem. and Drug.*

### Rapid Filtration.

Otto N. Witt announces that he has for some years made use of a very simple but effective contrivance for rapidly filtering liquids where it is of importance to save the suspended matters. It is easily intelligible without a cut.

Into a glass-funnel of perfect shape is placed a disc, made of glass or porcelain or some suitable metal (platinum, pure nickel, etc.), of a diameter of one and one-half inches, and about three-sixteenths inch diameter. These discs are ground at the edge to an angle of sixty degrees, so as to adapt themselves snugly to the shape of the funnel, and are perforated with numerous fine holes. They serve as sieves, and at the same time as supports for the filtering paper. Two thicknesses of this should be laid upon the discs in the funnel, the paper being turned up at the sides, and after having been moistened, made to lie flat against the glass. The lower sheet of paper should be only as large as the disc itself, otherwise it will not be possible to cause the other filter to accommodate itself to the sides without ugly folds. The funnel with disc is then set into a flask or other receptacle, and this is connected with the filter-pump, whereupon filtration will proceed very much more rapidly than when conical filters are used. If the liquid to be filtered is alcoholic or ethereal, the water with which the filters had been first moistened, must be displaced by washing it with alcohol, or with alcohol and afterwards ether.

The glass disc or sieves are made by Const. Heintz, of Stützerbach, the porcelain-sieves by Haldenwanger's porcelain factory in Charlottenburg. They may be ordered through dealers in chemical apparatus.

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**Medicines in Capsules.**—When any form of alcohol is taken in connection with gelatin capsules, the latter are not soluble. Tannin also renders gelatin insoluble. When the stomach is inflamed and irritable—as following excessive use of alcoholic drinks—chloral, morphia, and other medicines should not be administered in this form.—*Southern Practitioner.*

**Cerate of Subacetate of Lead** remains white, non-irritating, and free from rancid odor, when incorporated with 2% to 3% of boric acid.

### Drumine: a New Anæsthetic.

Under the name *drumine*, Dr. John Reid has described an alkaloidal compound, which he says he has separated from an Australian Euphorbiaceous plant (*Euphorbia Drummondii* Boiss.), and has found to possess anæsthetic properties resembling closely those of cocaine. This plant is reported in South Australia to be fatal to sheep and cattle feeding upon it, death following in from twenty-four hours to seven days, marked by paralysis of the extremities, the action being most energetic when the greatest quantity of juice is present in the plant. The compound was obtained by exhausting the plant with alcohol, distilling off the spirit, adding ammonia in excess, filtering, dissolving the residue in dilute hydrochloric acid, filtering the solution through animal charcoal, and concentrating, when the hydrochlorate was deposited in concentrically marked discs with radiating fissures. It was almost insoluble in ether, and freely soluble in chloroform and in water. A 4% solution, applied to the tongue, nostril, and hand, is described as having produced very marked anæsthesia in each case, the sense of taste, even to quinine, having been abolished on the side of the tongue to which it was applied. Injected subcutaneously in a case of chronic sciatica and in cases of severe sprains, it is said to have given immediate relief.

*Drumine* is, in Dr. Reid's opinion, "almost a pure sensory paralyzer without preliminary excitement," and can be given with comparatively slight, if any, risk.—*Pharm. Journ.*

[Dr. Reid uses the hydrochlorate of drumine, which is very soluble in water. In his original paper, in the *Australian Medical Gazette*, October, 1886, he confounds the alkaloid with the hydrochlorate. At all events, there is some ambiguity in his statements regarding the solubility of the alkaloid and the salt. From analogy, we should suppose that the alkaloid was soluble and the salt insoluble in chloroform.—Ed. Am. Dr.]

### Decomposition of Hypodermic Solutions.

It is known that considerable local irritation sometimes follows the introduction of a medicine hypodermically, and this result has been attributed to the influences of micro-organisms contained in the solution used. The conditions under which this influence is exerted have been the subject of an investigation by Dr. Engelmann, whose attention was directed specially to solutions of ergotin. He reports (*Med. Wochenschr.*, No. 39) that by cultivation on gelatin plates he has demonstrated the constant occurrence of microbes in solutions of ergotin of various origin, but that the organisms differed widely in their number and nature. On the whole, he is nevertheless of opinion that ergotin is not particularly favorable to their development, since, after a time, the organisms seem to perish, either through exhaustion of nutriment or other causes. Moreover, the ergotin does not appear to undergo any alteration. Speculating as to the origin of the organisms, he was led to suspect that they might be derived from the water used in dispensing, and upon testing several samples of distilled water obtained from high-class pharmacies, he was astonished at the number of organisms present in them. This state of things Dr. Engelmann considers is attributable to the fact that the vessels used for storing distilled water are not thoroughly cleansed sufficiently often, and thus become a breeding place for microbes. The influence of certain antiseptics, such as carbolic and salicylic acids, glycerin, and mercuric chloride, in preventing the development of organisms in such solutions was tried, but it was found that when used in any admissible proportions they only exercise a limited influence. Dr. Engelmann therefore prefers the use, where practicable, of solutions freshly prepared with previously sterilized distilled water.—*Pharm. Journ.*

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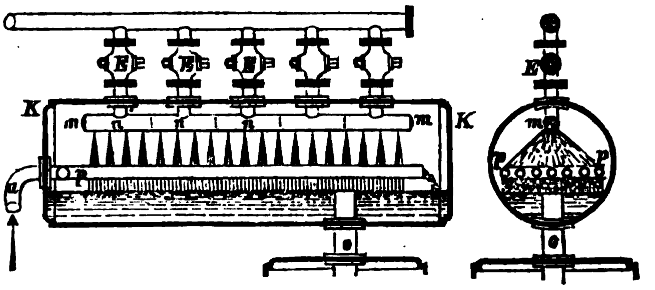
**Preparation of Salol.**—At the last meeting of the British Pharmaceutical Conference, it was stated that information could not be obtained as to the method of preparing salol, the phenyl ether of salicylic acid that had recently been introduced as an antiseptic. This information has since been supplied by Dr. C. Kalbe (*Pharm. Zeit.*, No. 72, p. 544), who says it is prepared by heating together equivalent quantities of sodium salicylate and sodium carbonate in the presence of phosphorus pentachloride, the end products being sodium chloride, phosphoric anhydride, and *salol*. In a subsequent communication (*Archiv*, Nov., p. 928), Dr. Eckenroth announced that phosgene gas (carbonic oxychloride) could be substituted for the more expensive phosphorus pentachloride. He also described a crystalline monobrom-derivative of salol.—*Pharm. Journ.*

**Iodide of Sodium** is said by the writer of a leading article in the *British Medical Journal* to have the following advantages over the potassium salt. It can be used for almost all the purposes for which the latter is employed therapeutically with equally good results. It is more easily assimilated. It is not followed by the same undesirable effects often produced by potassium iodide.

### CONDENSER FOR VOLATILE SOLVENTS WHICH ARE INSOLUBLE IN WATER.

An apparatus for condensing vapors of benzin and similar solvents has been patented by L. & C. Steinmüller, of Gummersbach, Germany.

It consists of a vessel or box *k*, through which pass a series of thin-walled tubes *p*, *p*, into which the vapors of the volatile solvent enter at *a*. By means of a series of jets, regulated by the valves *e*, a sufficient quantity of cold water is constantly sprayed upon the tubes which causes the condensation of the vapors, so that the condensed liquid will run out at the other end, upon the surface of the water in the vessel. By means of an overflow *o*, the surplus water and the condensed solvent are constantly removed to a reservoir. Any vapor which should escape condensation within the tubes is condensed when it comes in contact with the sprays of water.



Steinmüller's condenser for volatile solvents.

### Mode of collecting Asafœtida in Afghanistan.

J. E. T. Aitchison, Brigade Surgeon of the Bengal Army, gives the following account of the collection of asafœtida:

The method of collecting the drug, as far as I could learn, was as follows: A few men, employed for the purpose by some capitalist at Herat, are sent to these asafœtida-bearing plains during June. These take with them provisions consisting of flour, and several donkey-loads of watermelons, the latter in lieu of water, which is not only scarce there, but usually saline. The men begin their work by laying bare the root-stalk to a depth of a couple of inches of those plants only which have not as yet reached their flower-bearing stage. They then cut off a slice from the top of the root-stock, from which at once a quantity of milky juice exudes, which my informant told me was not collected then. They next proceeded to cover over the root by means of a domed structure of from six to eight inches in height, called a Khora, formed of twigs and covered with clay, leaving an opening towards the north, thus protecting the exposed root from the rays of the sun. The drug collectors return in about five or six weeks' time, and it was at this stage that the process of collecting came under my personal observation. A thick gummy, not milky, reddish substance now appeared in more or less irregular lumps upon the exposed surface of the root, which looked to me exactly like the ordinary asafœtida of commerce, as employed in medicine. This was scraped off with a piece of iron hoop, or removed along with a slice of the root, and at once placed in a leather bag, the tanned skin of a kid or goat. My guide informed me that occasionally the plant was operated upon in this manner more than once in the season. The asafœtida was then conveyed to Herat, where it usually underwent the process of adulteration with a red clay, táwah, and where it was sold to certain export traders, called Kakri-log, who convey it to India. On August 17th, when I crossed the great asafœtida plains where this drug is chiefly collected, except for the small domes over each root, there was not a leaf or a stem or anything left to point to the fact that any such plant had ever existed there, the heat and winds of July and August having removed every trace.—*Pharm. Journ.*

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**Note on the Assay of Aromatic Spirit of Ammonia.**—Mr. Edward D. Gravill has recently proposed a method of assaying aromatic spirit of ammonia by estimating the amount of carbonic acid gas given off when a measured volume of the spirit was treated with an acid. And he further proposed to use for this purpose the well-known Allen's nitrometer, which acts on the same principle as Lunge's (see our last volume, p. 71). It appears to us, however, that it is comparatively unimportant whether the preparation in question contains a little more or less of the *carbonate* of ammonium, provided the total amount of ammonia, either free or as carbonate, is in accordance with the officinal requirements. Of course, it is well enough to ascertain the quantity of the carbonate; but in addition to it, the liquid should be supersaturated with volumetric sulphuric acid, gentle heat being applied to expel all carbonic acid gas, and the excess of sulphuric acid titrated back with standard solution of soda, phenolphthalein being used as indicator.

### Ammonio-Nitrate of Silver an Explosive Body.

MR. H. N. DRAPER draws attention to a peculiar risk attending the preparation of ammonio-nitrate of silver which is probably not generally known, though at least one recent text-book warns the student against the evaporation of the liquid "as there is a risk of producing an explosive body." Only one chemist, viz., Prof. Prescott, appears to have, so far, ventured on an opinion as to the nature of the precipitate formed on the addition of ammonia to nitrate of silver. He looks upon it as $(NH_2Ag)_2O$, but acknowledges it as merely hypothetical.

Mr. Napier (*Pharm. Journ.*, Dec. 18th) relates his experience as follows:

I cannot think that it will be uninteresting if I shortly state the circumstances under which, some years ago, my attention was directed to this subject. There is a very excellent and frequently-used method of glass silvering particularly applicable to the production of telescopic specula, which, shortly described, consists in the reduction by milk sugar of an ammonical solution of silver nitrate, to which potassium hydrate has been added.

I have abundant reason to know *that with ordinary precaution* this process can be carried out with perfect safety; but that no departure should be made from the prescribed conditions, and that especially the silver solution should not be left about unheeded, was sufficiently demonstrated by the circumstances which I now detail.

To a solution of 3.3 grammes silver nitrate enough ammonia was added to redissolve the precipitate at first formed, and then 5 grammes of pure caustic potash. The precipitate produced by the potash was (nearly) dissolved by a further addition of ammonia. The entire volume of the liquid was 50 C.c. It was inadvertently left in an uncovered beaker during nine days, and on being then examined, its surface was found to be covered with a broken-up, lustrous, graphitic film. The internal walls of the beaker were coated with a closely adherent continuous deposit which might have been taken for metallic silver, were it not that its color more nearly resembled that of the lead sulphide which is reduced by sulpho-carbamide (sulpho-urea). I poured from the beaker into the laboratory sink a perfectly clear liquid, but observing near the bottom a nearly black pulverulent deposit, I, in a weak moment, turned upon this a stream of water from the tap. Here my observations, as regards any practical usefulness, came for the time to an end, for there was a violent explosion which so completely shattered the beaker as not to leave a fragment of it in my hands, which were somewhat severely cut, and I was made deaf for several hours.

It was pretty clear from the outset that, under conditions not quite expected, I had inadvertently produced the compound of silver with ammonia known as Bertholet's fulminating silver, and which has also been viewed as a nitride of the metal. These conditions seemed to be sufficiently interesting for examination, and with the double object of doing this and of arriving at the principle upon which the silvering process was based, I began a series of experiments.

The author then discusses the question of the constitution of the compound, and after quoting the results of his analyses and experiments, he believes it to be probable that, when the solution contains silver oxide and ammonia in the proportion of $Ag_2O$ to $NH_4OH$, and it is exposed to the air, it loses 2 mol. of ammonia, and the remainder $Ag_2O+2NH_4$ is extremely prone to split up into Bertholet's fulminating silver ($2AgNH_2$) and water ($3H_2O$).

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**Japanese Oil of Peppermint**, according B. B. Niederstadt, has the specific gravity 0.960 to 0.961, and deviates the ray of polarized light strongly to the left (—105° to —106°, in a Soleil-Ventzke polariscope). It is indifferent towards iodine, soluble in one to two parts of alcohol of sp. gr. 0.850, and does not distinctly give the bluish-violet color with nitric acid which is characteristic of English oil of peppermint.—*Rep. Anal. Chem.*, 1886, 575.

**Ferrated Cod-Liver Oil**, free from the usual, bitter, acrid taste, may be prepared by saponifying the oil, decomposing with ferric chloride, and dissolving the precipitate in another portion of the oil.

**Asiminine**, an alkaline recently discovered and named by Prof. J. U. Lloyd, exists in the seeds of the Ohio panpan (*Asimina triloba*). It is white, odorless, tasteless; practically insoluble in water; freely soluble in alcohol and ether, and less so in chloroform and benzol. When precipitated from its solvents by evaporation, its condition is amorphous. Its soluble salts are bitter and are precipitated by the usual alkaloidal reagents. The hydrochlorate is less soluble than salts prepared with other customary acids, but is preferable on account of its easier production. The hydrochlorate is white, odorless, sweetish and hhen bitter in flavor, and crystallizes from alcohol in cransparent, square plates, or in interlocked sections of tubes. Its therapeutic usefulness appears to be as a typnotic.—*Drugs of N. Amer.*

### On the Physiological Effects of Saccharin.

WHEN Fahlberg's "saccharin" first became known, and its possible use as a sweetening agent was suggested, nothing definite was known regarding its physiological effects. At present, the result of the investigations of various experimenters are on record. Two Italian physiologists, Drs. Arducco and Mosso, found that frogs could be kept for many days in a neutral aqueous solution of saccharin without showing the least sign of discomfort. To dogs the saccharin was administered in quantities gradually rising to 75 grains daily during several days, without bad effects. The bodily weight remained the same, and the saccharin was eliminated unchanged by the urine. The latter was found to be normal in specific gravity and quantity; also in amount of urea and sulphates. The decomposition of the urine was retarded by the presence of the saccharin. Similar results were obtained by Dr. Stutzer, of Bonn, who experimented upon man. As much as 75 grains (5 Gm.) could be borne daily, without any abnormal effects or interference with the appetite.

The elimination of saccharin is accomplished through the kidneys, none of it being discoverable in the saliva, the milk, or the fæces. The sweetening power of 5 Gm. (75 grains) of saccharin is said to be equal to about 1 kilogram (2 lbs. 3 oz.) of sugar. E. Salkowski has recently confirmed Stutzer's statements. Regarding the effect of saccharin in diabetes, Prof. Dreschfeld, of Owens College, Manchester, states that it produces no alteration in the quantity of urine voided or in the amount of sugar excreted. Neither does it materially diminish the faculty of digesting protein bodies or carbohydrates.

According to Stutzer, the addition of small quantities of saccharine to malt increases its diastatic effect in the presence of sugar.—*Dingl. Polyt. Journ.*, 262, 83.

### The Administration of Cod-Liver Oil.

PROF. DUJARDIN-BEAUMETZ, in a recent lecture on "Vegetable Diet and Fatty Foods," made the following remarks about cod-liver oil:

Regarding the administration of cod-liver oil, I cannot too much urge the importance of giving cod-liver oil at meal-time, for when mixed with the whole mass of the food, and at the moment of the digestive process, these oils are better supported than when given on an empty stomach. Some have even gone so far as to recommend the incorporation of cod-liver oil with bread, but this combination is far from being palatable, and those who have used it have soon taken a disgust to cod-liver oil and bread.

Habit has a great deal to do with the repugnance which persons have to taking cod-liver oil, and while the people of the North relish it, the inhabitants of Central Europe find it very disagreeable. But it is a fact that children generally imbibe the oil with willingness and, when the habit of taking it is formed, with avidity.

I advise you to discard all those pharmaceutical emulsions which have been devised to mask the taste of cod-liver oil. There are two of these mixtures, nevertheless, which deserve to remain, as they associate with the oil principles which are of use in the treatment of scrofula and tuberculosis. I refer to the preparations of oleum morrhuæ with iodoform and eucalyptol. The first, highly recommended by Fonssagrives, has the following formula: The preparation with eucalyptol is as follows:

| | |
|---|---|
| Pale Cod-Liver Oil | 3 fl. oz. |
| Iodoform | 4 grains. |
| Oil of Anise | 10 min. |

M.

| | |
|---|---|
| Pale Cod-Liver Oil | 100 parts. |
| Eucalyptol | 1 part. |

M.

As for the dose of cod-liver oil and the quantity to be administered daily, this is very variable. Jaccoud, who is one of the most strenuous advocates of this remedial agent in the treatment of tuberculosis, has gone as far as 300 grammes (or about 10 oz.) per day. This is very large dosing, and few stomachs can bear anything like this quantity. Generally one is obliged to be satisfied with the moderate dose of a tablespoonful after each meal.

Under the name of bromo-iodized butter, Trousseau proposed the following mixture, which is designed to replace cod-liver oil:

| | |
|---|---|
| Iodide of Potassium | 1 grain. |
| Bromide of Potassium | 4 grains. |
| Chloride of Sodium | 32 grains. |
| Fresh Butter | 4 tr. oz. |

M.

Sig.: To be spread on bread like butter.—After *Therap. Gaz.*

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**Salol** is recommended as an excellent antiseptic mouth-wash, much preferable to solutions of salicylic acid, as it does not affect the teeth. As it is insoluble in water, it is separated from its alcoholic solution by the latter in form of minute droplets which adhere to the teeth and gums and exert there a protracted antiseptic effect. It should be dissolved in alcohol, and enough of the solution added to water to make the mixture contain three per cent of salol.

THE

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## EDITORIAL.

ATTENTION is directed to the new test for the purity of *Cocaine* by Mr. Henry Maclagan of this city, who has had an extended experience with this alkaloid, having had charge of its manufacture on a very large scale. While Dr. Giesel's test, by permanganate of potassium, is acknowledged to be fully reliable, and to indicate the least trace of amorphous alkaloid accompanying the crystallizble cocaine, it is now generally acknowledged that it is too exacting, since it is practically impossible to manufacture an alkaloid of such excessive purity without great waste and without raising its cost to a figure out of all proportion to the practical uses it is put to.

We have already in our preceding volume (page 110) recorded the fact that practitioners of medicine who had been using various kinds of commercial cocaine of good quality, among which were both the amorphous and the crystalline, did not observe any noticeable difference in the therapeutic effects. Indeed, some of them who have had a very extended experience with it, were not even aware, up to the time of the publication of the fact alluded to, that there were two kinds of "cocaine" in the market, or rather, that the commercial cocaines contained more than one alkaloid.

Mr. Maclagan's test has been known to one of us for about six months, and is in our opinion a good and simple test, of sufficient delicacy for every practical purpose. No data are at hand as yet to show what is the smallest percentage of amorphous alkaloid revealed by the test. But this will be soon ascertained; it certainly is quite small.

AN official Standing Committee on the Revision of the German Pharmacopœia is likely to be organized in the near future. The proposal to inaugurate such a committee has been made repeatedly and by various influential bodies; but it is only recently that it has been entertained by government.

For the present, it is intended to create a commission consisting of 12 members, under the authority of the Imperial Health Department. Six of the members are to be physicians, and the other six are to be apothecaries, chemists, and pharmacognosists. It is proposed that they should meet once a year, that they receive mileage and per diem fees, and eventually also remuneration for special investigations or expenses necessarily incurred. A bill incorporating these provisions was introduced in the Bundesrath some time ago, but it is likely to remain unacted upon for some time, owing to the dissolution of the parliament.

AT a recent meeting of the Paris Pharmaceutical Society, some interesting facts transpired regarding the purity of commercial sulphate of quinine. The French Codex (of 1884) directs to mix 2 Gm. of the salt with 20 C.c. of distilled water, to shake thoroughly, then to place the test-tube for half an hour into *warm* water, occasionally shaking, finally to cool it to 15° C. (59° F.), and having maintained it at this temperature, to filter. The filtrate is then tested with water of ammonia, as directed in U. S. Pharm. Now while some authorities hold that it is a mistake to *warm* the mixture at all, and that the maceration should be conducted in the cold, a committee of the Paris Society (according to the *Chem. and Drugg.*) reported through Mr. Marty that the officinal text led to reliable results, if the temperature of previous maceration were kept at 60° C. (140° F.). As soon as this had been reported, Mr. Ferrand related a fact which had just occurred at the Pharmacie Centrale.

It appears a lot of quinine sulphate (from a manufacturer not named) had been received, and, as usual, submitted to the chemist for examination. He applied the modified Kerner's test (of the Codex), not taking particular care of the initial temperature of the maceration water, but being very careful to have the mixture kept at 15° C. (59° Fahr.) for the requisite time before filtering and adding the ammonia. The test having shown the chemical to be deficient in purity, the manufacturer was notified. But he replied his quinine did answer the test with maceration water at 60° C., and offered to prove it to the customer's satisfaction. He accordingly came to the laboratory and macerated his sulphate in water carefully kept in a drying oven at 60° C., and then showed that the chemical stood the ammonia test. Next the same quinine was assayed by the new chromic acid test recommended by Dr. de Vrij, and found to contain some six per cent of foreign alkaloids, a result agreeing with the conclusions arrived at by the chemist. Hence, said M. Ferrand, manufacturers have already found a way to circumvent the "improved" test proposed by the quinine committee of the Pharmaceutical Society, even before the test is formally adopted. The subject is to come up again for discussion at the meeting in January, when a battle-royal may be expected.

PROF. CHARLES WINKLER, the discoverer of the new element Germanium, in an elaborate paper in the *Journal für Praktische Chemie*, 1886, 183, reports that the new metal, which has been identified as the hypothetical "eka-silicium" prognosticated fifteen years ago by Mendelejeff, and which Prof. Winkler has termed "Germanium," has already become the cause of animosity. The editor of the *Moniteur scientifique* of Paris, Mr. Quesneville, has actually made a public demand of Prof. Winkler, to drop the name *Germanium*, which he says has "*un goût de terroir trop prononcé*" ["a too pronounced taste of terror"] and to substitute, in place of it, the name eka-silicium which had already been used by Mendelejeff. He forgets, however, at the same time, to propose a new name for Gallium, which was discovered by Lecocq de Boisbaudran some years ago. It is a discouraging sign for the standard of science in any country to see its representatives dragging personal questions or national sentiments into scientific discussions.

A BRITISH medical journal has commented upon the bad habit of naming drugs after the manner of antifebrine, antipyrine, etc., which should attract attention. The practice is quite as reprehensible as that of diseases by the names of physicians who are credited with their first description, *e. g.*, Bright's disease, Basedow's disease, Menière's disease, etc. It is not unlikely, however, that it is partly the outcome of the fashion of giving to newly-discovered agents of inorganic origin such exhaustively descriptive titles as effectually to prevent their employment in general use. It may well be hoped that chemists will have more regard for this fact in future, and adopt, in their nomenclature, such titles for their new products as may cause less offence to propriety. A reasonable degree of accuracy might be achieved without going to an extreme degree of minuteness, and thereby avoid a name based upon presumed effects.

WE welcome to our exchange list *The Pharmaceutical Era* of Detroit, edited by H. B. Lyons, M.D. This new monthly commences its existence with a very interesting January number, and we wish it long life and prosperity. The novel feature of this new periodical is an index of the pharmaceutical literature of the world.

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**New York State Board of Pharmacy.**—The next examinations will be held Friday, Feb. 25th, at Albany Syracuse, and Rochester, and on the following day at Watertown and at Jamaica.

Twenty-nine out of forty-two candidates were successful at the November examinations.

**John M. Maris & Co.**, dealers in druggists' supplies, of 711 Market st., Philadelphia, suffered severely in the burning of their warehouse on the 21st of December. The loss on the building and stock was estimated at the time as over $100,000, the stock being insured for $60,000. The building occupied by J. B. Lippincott & Co., publishers, adjoining the one destroyed, was in great danger, but was saved.

**The Ohio State Pharmaceutical Association** will convene for their ninth annual meeting at Akron, Ohio, June 8th, 1887. The local management has secured an ample, well-located hall, and are making extensive preparations for the exhibit. Several large firms have signified their intention to exhibit, and a fine display is assured. An unusually large meeting is anticipated, as Akron is so well provided with railroad facilities. Parties desiring space in the exhibit hall are requested to confer, at an early date, with the Local Sec., Chas. Inman, Akron, O.

Very truly yours, CHAS. INMAN, *Local Sec.*

**Subiodide of Bismuth**, lately recommended by a Philadelphia physician as an application for ulcerating surfaces, is mentioned by Gmelin ("Handbook of Chem.," Watts, IV., 437) as a powder which is precipitated when the iodide of bismuth (formed by fusion of the two metals) is boiled with water. Its color is given as chestnut-brown by Berthelot; as red by Arppe. It can be formed by triturating 306 parts of subnitrate of bismuth with 165.6 parts of iodide of potassium and sufficient dilute hydrochloric acid to form a paste. The paste becomes yellow and is then thrown into water, where the reaction is completed, and the amorphous, heavy, adhesive, brick-red powder is precipitated. It is insoluble in water, alcohol, ether, and chloroform, and is decomposed by the strong mineral acids, with liberation of iodine, and by strong alkalies with liberation of bismuth oxide.—*Amer. Journ. Pharm.*

In the *Amer. Journ. of Pharm.* for January, Mr. England gives the following process as preferable to the "trituration process" above referred to, and more likely to yield a uniform product:

| | |
|---|---|
| Take of Subnitrate of Bismuth........ | ℥ iiss. gr. xxiv. |
| Nitric Acid.............................fl. | ℥ iij. |
| Iodide of Potassium.................... | ʒ xi. gr. iij. |
| Hot Water............ ..............fl. | ℥ xl. |

The bismuth salt having been dissolved (in a porcelain capsule) in the acid with the aid of heat, twelve fluidounces of hot water are to be added in portions, with stirring after each addition. The iodide having been dissolved in the remainder of the hot water, the bismuth solution is added to it with active stirring, which is continued until decomposition is complete. Filter at once, wash precipitate with warm water, dry, and powder.

**Detection of Albumin.**—H. Prunier refers to Méhu's criticism of Tanret's reagent for albumin, and asserts that Musculus' method is similarly liable to error. The latter process, as applied to urine, for example, consists in pouring nitric acid carefully down the side of a test-tube containing the urine, so that the acid forms a layer underneath the urine. In presence of albumin, a whitish turbidity makes its appearance as the two liquids slowly mix. The author has, however, frequently obtained this turbidity in urine which gave no turbidity on boiling, or on heating with saturated sodium sulphate solution and acetic acid, nor with this acid and potassium ferrocyanide; microscopic examination does not show the crystalline forms of uric acid. Further investigation showed the reaction to be due to peptone. The method in question should always be controlled by boiling with sodium sulphate and addition of acetic acid.—*Pharm. Journ.* [3], 13, 501.

**Rough on Fevers** is a popular name suggested for antipyrin, antifebrin, and thallin.

## CORRESPONDENCE.

### La Fayette Mixture.

MY DEAR CASTLE:—I learn from Mr. H. A. Cassebeer, Jr., that his father, who is one of, if not the oldest druggist in New York, says that "La Fayette Mixture" was made by a druggist named Ludwig, in Greenwich street, for sailors, and that it was about the time of Lafayette's second or third visit to America, and that his advent was thus honored by this mixture being named after him. I am inclined to think that the formula did not originate in France, since it is not in the line of recipes I see in old books. Like syphilis, I think we must accord it an American origin. Very truly yours,

R. W. TAYLOR.

NEW YORK, December 20th, 1886.

[The above explanation, from one of our best authorities in genito-urinary maladies, is the most satisfactory that we have been able to reach with regard to the origin of this mixture. It has for a long time been in use in the New York Hospital, which, by the way, was formerly the local hospital for the mercantile marine service.—ED. AMERICAN DRUGGIST.]

### Purification of Water with Alum.

DEAR SIR:—In the September number of the AMERICAN DRUGGIST I find a short account of the influence of alum in purifying dirty water.

In this country, there are many regions where there are no wells, or only such as have brackish water unfit for use. In such regions, the people for their supply of water depend upon large tanks, situated just on the outside of the villages, and filled only with rain-water, which is always very muddy. The people use this water for all purposes, as do all the animals—cattle, sheep, goats, etc.—belonging to the villages, and at night wild animals at some season of the year here come to drink. Thus the water is more or less stirred up most of the time and tastes of urine and manure dropped by the animals entering the water. For many years, whenever English troops are required to enter such a region, alum is always provided for purifying the water. Large earthen vessels, obtainable in every village and holding several gallons, are filled from these tanks and a quantity of alum is thrown in and well stirred. In a few minutes, even while we are watching it, the thick, dirty water becomes clear, as the dirt begins to gather in masses and settles to the bottom. This water is used for cooking and drinking purposes as freely as the best of well or spring water.

My father has for years used this method for obtaining clear, clean water for drinking and cooking purposes. In such cases, I suppose the amount of alum used is greater than is mentioned in the article noticed, hence the rapid cleaning, not more than three or four minutes being necessary.

We have never taken the pains to ascertain the quantity of alum necessary for a given amount of water, but use what we think from experience is necessary, measuring it in the hand.

I have myself used this purified water for days at a time, and never observed any ill effects from its use.

Though I have not taken the time to make a chemical test, I have never noticed the slightest taste of alum in the water, and, what is still more, the bad tastes of the dirty water have been in some ways removed.

Yours very truly,

M. B. CARLETON, M.D.

AMBALA, NORTHERN INDIA, November 15th, 1886.

In connection with this subject, the editor can add that during the war of 1861-5 he served as a surgeon for over two years on a naval vessel in the lower portion of the Mississippi. The water of the river was alone used for drinking, cooking, washing, etc., although it was at all times muddy and sometimes was fairly yellow with suspended earth and organic matter, most of the earth being aluminous. It was the practice of the stewards and cooks to draw enough river water to nearly fill a cask and then to pour slowly upon the surface (distributing as evenly as possible over the whole) about a quart of water in which had been dissolved a lump of alum about an inch and a half to two inches in diameter. This coagulated the vegetable matter contained in the water of the cask, and as it slowly settled to the bottom it carried with it all the impurities of the water, and left it perfectly clear, palatable, and soft. So far as two years' constant use of such water served to convey an opinion of its merits, it seemed to be thoroughly wholesome. This mode of treating the river water is not novel, having been employed for many years on the Mississippi and all over the south-western portion of this continent and in Central America.

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**Roach Poison.**—Soxhlet recommends a mixture of 1 kilogr. angelica root, and 20 grammes of oil of eucalyptus as a sure vermin destroyer, the powder being strewn in infested places.

### Pimento Industry.

In an interesting communication to *Nature* (reprinted by the *Chem. and Drugg.*) on "The Dispersion of Plants by Birds," Mr. D. Morris, of Kew, give the following particulars regarding the propagation of *Pimenta vulgaris* in Jamaica. The pimento industry, he states, depends entirely for its existence on the offices of frugivorous birds. The pimento of commerce is the dried fruit of the pimento allspice, or Jamaica pepper-tree (*Pimenta vulgaris*). No other country supplies this article (although the tree itself is widely distributed both in the West Indies and on the mainland), and the value of the exports of pimento from Jamaica have reached (in 1880) a total of £100,000. This is probably the largest spice industry in the world, and it is wholly dependent upon the action of frugivorous birds. In Luan's "Hortus Jamaicensis," Vol. II., p. 67, published about the end of last century, it is stated that "the usual method of forming a new pimento plantation, or 'pimento walk,' is nothing more than to appropriate a piece of woodland in the neighborhood of a plantation already existing; or, in a country where the scattered trees are found in a native state, the woods of which being fallen, the trees are suffered to remain on the ground till they become rotten and perish. In the course of twelve months after the first seasons (rains), abundance of young pimento plants will be found growing vigorously in all parts of the land, being without doubt produced from white berries scattered there by the birds, while the fallen trees, etc., afford them both shelter and shade." In a foot-note it is added that "birds eagerly devour the ripe seeds of the pimento, and, in eating them, propagate these trees in all parts of the woods. It is thought that the seeds passing through them undergo some fermentation which fits them better for vegetation than those gathered immediately from the tree." The present plan for forming pimento plantations in Jamaica is exactly as thus described. In fact, the planters firmly believe that no other plan is likely to produce good pimento walks, although it has been shown by experiments in the Botanical Gardens that by careful treatment plants of pimento can be raised in nurseries in large numbers exactly as any other economic plants. It remains, however, that all the present pimento plantations in Jamaica have been formed by the action of frugivorous birds, and to this agency alone we are indebted for the commercial supply of a most valuable and wholesome spice.

### New Copper Reduction Test for the Estimation of Arsenic.

Using a standard square of copper as an indicator, H. Carmichael adopts the following method for the estimation of *very small quantities* of arsenic. A clean, smooth, polished sheet of pure copper, 0.05 Mm. thick, is cut into pieces 20 by 21 Mm. A strip 1 Mm. wide is cut nearly across the longer side and bent at a right angle to the general surface, the bent strips forming the handles for manipulating the squares. The substance under examination is digested with strong sulphuric acid, the solution reduced to a small volume, and strong hydrochloric acid added. If the substance can only contain arsenic in the arsenious form, it is reduced to a small volume of liquid and strongly acidified with hydrochloric acid. The acidified solution is brought into a porcelain capsule, and a square of copper introduced. The capsule is placed over a small flame, and the square moved to and fro until it acquires the tint of the standard chosen. The copper is then removed, washed, and dried. The strength of acid is maintained, and squares made to succeed one another until there is no further discoloration. The total amount of arsenic present is obtained by multiplying the number of squares by the volume of standard arsenious solution necessary to color equally a single square, and subtracting an amount which it is shown by trial the last square has required less than a normal square. The method is illustrated by details of the analysis of a sample of wall-paper and of a human stomach. A copper square, 1 Mm. wide, is capable of disclosing and estimating 0.0000025 gramme of arsenious oxide.—*J. Chem. Soc.*

### The Nature of Snake Poison.

With regard to the venom of the Indian cobra (*Naja tripudians*), R. N. Wolfenden finds that its toxicity is not due to any bacterium or living organism, nor to any alkaloid—alkaloids and ptomaines are entirely absent from the venom—nor is it due to any cobric acid, such as was described by Blyth (*Analyst*, 1, 204). The author finds that the crystals to which the name cobric acid was given are in reality composed of calcium sulphate. The venom, however, is sometimes faintly acid, sometimes neutral. The poisonous properties of the venom are due to its proteid constituents, which are as follows: (1) Globulin, which is always present and kills by causing asphyxia; (2) Syntonin, which is precipitated with magnesium sulphate with the globulin. It dialyzes through parchment paper to some extent. The poisonous property of the acid dialyzated is due to this proteid, not to cobric acid. Its action is similar to that of the globulin, but less intense. (3) Serum albumin; this is also toxic, producing paralysis; (4) Traces in some pecimens of hemi-albumose, and questionable traces of peptone are regarded as accidental.

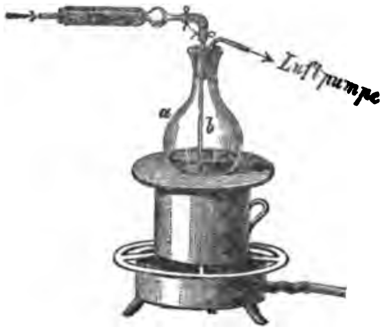
With regard to the venom of the Indian viper (*Daboia Russellii*), it is found to be of the same reaction as that of the cobra; but here again there is no toxic acid, alkaloid, or living organism, but the proteids are the poisonous constituents. These are three in number: (1) Globulin, which greatly preponderates, as in cobra venom; (2) Serum albumin in small amount; (3) A proteid which possesses many of the properties of an albumose. True peptones do not occur, and it is probable that the substances described by Weir Mitchell and Reichart in crotalus, copperhead, and mocassin venoms as peptones are in reality albumoses.—*J. Physiol.* and *J. Chem. Soc.*

### METHOD OF DRYING FATS.

When a fat or fatty acid is mixed with water, and it is to be dried, it is usually directed to expose it to a heat of 100° to 110° C., and perhaps to finish the drying by allowing the vessel to stand over sulphuric acid.

As, however, the fat or fatty acid floats on top of any water that may be contained in the same vessel, the escape of the water is rendered very difficult and uncertain, a fact which is well recognized by analysts, who adopt various contrivances to overcome this difficulty. Adolf Sonnenschein (in *Zeitsch. f. Anal. Chem.*, 1886, 372) proposes to pass a current of dry air through the melted fat, and uses the simple apparatus shown in the cut, which needs no further explanation.

We would like, however, to make one suggestion. The passage of a current of air through the mixture of water and melted fat in the flask (which is heated on a water-bath) may cause the mechanical aspiration of minute particles of fat thrown upwards with the water, and carry some of it into the tube leading to the pump. It seems, therefore, to be advisable to use a bulb-tube in place of a plain tube, for connecting with the air-pump.



Sonnenschein's apparatus for drying fat.

**New Reaction of Hyposulphites.**—Prof. L. L. de Koninck reports a new reaction for hyposulphites. If any of the hyposulphites of the alkalies are treated with metallic aluminium, in presence of sodium or potassium hydrate, they yield sulphides of the alkalies, which may easily be recognized in the solution by the characteristic reagents, such as nitro-prusside of sodium. The reaction probably takes place as follows, sodium hyposulphite being chosen as an example:

$$\underset{\substack{\text{sodium}\\ \text{hyposulphite}}}{Na_2S_2O_3} + \underset{\substack{\text{potassium}\\ \text{hydrate}}}{2KOH} + \underset{\text{hydrogen}}{2H} =$$

$$= \underset{\substack{\text{sodium}\\ \text{sulphate}}}{Na_2SO_3} + \underset{\substack{\text{potassium}\\ \text{sulphide}}}{KS} + \underset{\text{water}}{2H_2O}$$

The hydrogen is probably derived from the action of aluminium upon the potassium hydrate.—After *Zeitschr. f. Anal. Chem.*, 1887, 26.

**New Method of Carbon Determination.**—Heretofore, the determination of carbon in organic compounds has been accomplished by combustion, in the usual apparatus used for ultimate analysis. Recently, L. Legler has published a method for estimating glycerin by decomposing it with chromic acid, in presence of concentrated sulphuric acid; but he directed the products of combustion to be determined by the gravimetric method. Messrs. C. F. Cross and E. J. Bevan now announce (in the *Chem. News*) the important fact that the products may be estimated *volumetrically*, and that the execution is very simple, since it may be performed in Lunge's nitrometer. The authors promise an early report on the new method, which bids fair to render ultimate organic analysis more simple and less tedious, while at the same time permitting its execution without elaborate apparatus.

**Filter with Greased Edge.**—Certain substances have the disagreeable tendency to creep over the edge of the filter in which their solution has been poured. This may be entirely prevented, according to Gawalovski, by treating the edge or margin of the filter with paraffin, wax, or any fat free from inorganic matter (leaving no ash on combustion). Nothing will in this case creep over the edge of the filter, though the latter may have been (improperly) filled to near the margin.—*Zeitschr. f. Anal. Chem.*, 1887, 51.

### Commercial Aspects of Coca and Cocaine.

From a report on the coca market in Hamburg, in the *Chem. and Drugg.* (Jan. 6th), we take the following:

In the beginning of the year, and again towards its close, business in coca leaves has been very brisk. The United States have been the most important purchaser lately, and the execution of the orders from that quarter caused the article to advance from 35 to 60 per cent. Truxillo leaves are looked upon with suspicion in many quarters, and are commonly denominated "spurious coca;" but recently this variety has apparently found more favor with manufacturers. The bulk of the deliveries went at once into consumption. The lowest quotations of the year were touched in September, owing partly to the accumulation of stock, which then reached 40,000 kilos; partly to the development of the exports of crude cocaine from South America; and last, but not least, to the forced sale of a large parcel at about one-half the estimated market value.

The result of the diminished value caused an almost entire cessation of shipments from South America, and at present no further supplies are known to be on the way.

The extent of the consumption of coca in Bolivia and Peru may be inferred from the statement, made on good authority, that only about one-tenth part of the total crop is exported.

The future supply of leaves depends upon the development of the manufacture of crude cocaine in South America. The price last paid in Hamburg for crude cocaine equals 7¾*d* per gramme—a figure which appears to be remunerative for the Peruvian maker. It is said that several German makers of cocaine have resolved in future to use only the Peruvian crude cocaine, and have made contracts for the delivery of that substance extending over several months. The recent arrivals of crude cocaine show a purer article than the first consignments.

### Preservation of Rubber Apparatus

An inquiry has been carried out under the direction of the French Minister of War, with the object of ascertaining the cause and the remedy for the peculiar changes which articles made of India-rubber undergo when kept in stock, the annual loss to the Government made from deterioration of this class of goods being very considerable. Experience shows that India-rubber, after a time, loses the very qualities which made it useful, for it becomes dry and brittle. Articles kept in boxes, such as Higginson's syringes, Esmarch's bandages and drainage tubes, are particularly liable to deteriorate. Unfortunately, the commissioners, after a long and patient investigation, are not able to suggest much more than could have been recommended before. They advise, for instance, that Esmarch's bandages should be taken out of the boxes at least once a month, unrolled and manipulated. Drainage tubes should be hung up in a cool place, or soaked in a non-putrescible fluid. Finally, all objects made of rubber should be kept in a cool, damp place at a constant temperature, and sheltered from light, heat, and frost. Seeing that in many cases these conditions cannot be complied with, it is recommended that the bandages should be made of pure leaf rubber in lieu of the elastic tissue usually employed. The purer the rubber, the less readily does it undergo these structural alterations, and the lighter it weighs; its weight is, therefore, a sure guide to its quality. In consequence of these inquiries, the Minister has ordered that, in future, all rubber articles are to be made with pure rubber of the best quality, preferably with the leaf rubber. The quality of the articles will be gauged by their specific gravity in order to insure the purity of the material employed.—*Brit. Med. Journ.* and *Chem. and Drugg.*

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**Test for the Presence of "Saccharin" in Sugar.**—H. Reishauer publishes the following method of detecting the new sweetening principle "saccharin" in sugar: one hundred gm. of sugar are let stand for some hours in a closed vessel, with 150 to 200 C.c. of ether, shaking frequently. If a sample of sugar has an alkaline reaction, a strong aqueous solution is used instead of solid sugar; it is slightly acidified with phosphoric acid, and then shaken out with ether. The ethereal solution is then drawn off with a siphon and filtered. In both cases, the ether takes up a large part of the saccharin, which is obtained in the residue, after distilling off the ether, almost free from sugar. The presence of saccharin is best demonstrated by cautiously heating the residue in a platinum crucible with a mixture of 6 parts pure sodium carbonate and nitre, and finally igniting, not too strongly. Saccharin contains sulphur, which is thus completely converted into sulphuric acid.—*Biederm. C. B. f. Agrik. Chem.* and *Chem. News.*

**Germanium**, according to recent experiments by its discoverer, Prof. Winkler, has the atomic weight 72.32 (not 72.75 as first announced); that it fuses at 900° C., and at a somewhat higher temperature appears to sublime. Its density at 20.4° C. is 5.419; its specific heat, 0.0758, and atomic heat, 5.48. It forms dyad and tetrad salts.—*Chem. and Drugg.*

## QUERIES & ANSWERS.

*Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer, for the information of the editor, but not for publication.*

No. 1,847.—**Dispensatory of Valerius Cordus** (W. J. M., Philadelphia).

"I have a copy of the early dispensatory of Valerius Cordi, of the date 1571, formerly owned by and having the autograph of John Redmond Coxe. Do you know of any having an earlier date?"

You will find a sketch of Valerius Cordus and of his Dispensatory elsewhere in this number. Your edition is not a very early one, but still, it is earlier than those in our possession.

The library of the Surgeon-General's office in Washington contains a copy of the first, undated, duodecimo edition (which, in the Index Catalogue is erroneously classed as 16°, and referred to the year 1540); also an edition of 1563.

No. 1,848.—**Chlorodyne** (W. M.).

One of the latest formulæ presented for this preparation is that of B. L. Maltbie, of Randolph, N. Y., in the *Western Druggist.* It is as follows:

| | | |
|---|---|---|
| Morphine Hydrochlorate | gr. | 16 |
| Alcohol. | fl. dr. | 12 |
| Tinct. Cannabis Indica | fl. dr. | 4 |
| Oil Peppermint | min. | 6 |
| Tinct. Capsicum. | min. | 15 |
| Chloroform | fl. dr. | 4 |
| Hydrocyanic Acid Dil. | fl. dr. | 1 |
| Glycerin, enough to make | fl. oz. | 4 |

Dissolve the morphine in the alcohol, add the tincture of cannabis indica and other ingredients, in the order named.

No. 1,849.—**Impervious Corks** (Mel.).

Perhaps either one of the two following methods may answer your purpose:

1. (Bousquet's patented process.) Heat the corks to 100° C. (212° F.) in order to kill all spores which they may contain. Then, while still hot, dip them into a solution of 1 part of albumen (egg albumen or blood albumen) in 200 parts of water, and afterwards into another containing 1 part of tannic acid, ½ part of salicylic acid, and 200 parts of water. This causes a formation of tannate of albumen in the pores of the cork, and the salicylic acid, at the same time, acts antiseptically.

2. Make a solution of 4 parts of gelatin in 52 parts of water, and add to it, in the dark, or in a place illuminated with artificial (non-actinic) light, 1 part of bichromate of potassium or ammonium or sodium, previously likewise dissolved in water. Having first treated the corks with vapors of ether or benzol to render them thoroughly dry, dip them into the prepared solution, and then expose them several days to the sun-light, turning them carefully over so as to make the light fall upon every part of each cork. The coating of gelatin and chromic acid becomes insoluble under the influence of sun-light.

No. 1,850.—**Antipyrin** (W. F. B.).

1. "As the new febrifuge antipyrin is fast coming into use here, I would like to know something of its composition and general properties. I have read two or three articles in your journal in regard to its therapeutic use, but I have been unable to find anything relating to its manufacture.

2. "The last ounce I bought came in granular form. This I do not understand, as that which I dispensed previously was in light, feathery crystals, similar in appearance to morphine sulph. The container (a small tin box) is a *facsimile* of those containing the light crystals, so that I suppose the same manufacturers prepare it in both forms."

Very complete articles on this subject were published by us in 1884, Oct., p. 193, and Dec., p. 239. In 1885, Jan., p. 14, Nov., p. 210.

These articles will give you all the available information.

The substance is made by a patented process, the only manufacturers being Meister, Lucius & Brüning, of Höchst on the Rhine, and the granular powder is the most common form in which it appears in commerce. It will be practically useless for you to attempt to make it. Copies of the four numbers containing the articles referred to will be supplied for fifteen cents each.

No. 1,851.—**Sulpho-ichthyolate of Ammonium** (W. F. B.).

"Can you give me a formula for sulpho-ichthyolate of ammonium?"

The common name of this substance is *ichthyol*, and you will find an account of the manner of preparing it in the American Druggist for June last.

No. 1,852.—**Formularies** (E. A.).

See answer to queries on p. 197 of our October number of last year.

No. 1,853.—**Ether Emulsion** (M. V.).

This correspondent desires us to point out a method by which he may be enabled to cause an ethereal solution of a fat or oil to separate from an aqueous liquid remaining behind. We judge from his letter that he has been experimenting with cod-liver oil emulsions, and has tried to dissolve the oil by agitation with ether.

If the mixture had an alkaline reaction and the ether was anhydrous, the separation will be rather slow; indeed, sometimes it will not be perfect after many days. However, there are various ways in which this may be accelerated. One is to warm the mixture, if possible under an upright condenser, but not enough to cause the ether to boil. Another is to add some water; in fact, it is not advisable to use strong ether for such extractions, as the ether will abstract a certain amount of water from the mixture so as to saturate itself with it. The proper kind of ether to use is that which is already saturated with water—the so-called washed ether. Often the addition of a little absolute alcohol will assist the separation. Or, again, a little solution of a stearate may be used, according to Soxhlet's proposition. For this purpose, about 15 Gm. of the mass of a stearin candle is heated in a water-bath with 25 C.c. of alcohol and 10 C.c. of solution of potassa (spec. grav. 1.270) for a few minutes until solution has taken place, and the liquid is then diluted to 100 C.c. A very small quantity (a limited number of drops only) of this solution is sufficient to hasten the separation.

When it is not necessary to render or to keep the liquid alkaline, and an acid may be added without interfering with the free condition of the fat or oil, the ethereal solution will be found to separate without difficulty.

No. 1,854.—**Test for Fusel Oil** (D. A. V.).

A great many methods have been recommended, particularly of late years, for detecting and estimating fusel oil, but none of them is perfectly satisfactory when only small quantities are present. As our correspondent only asks for a qualitative test, we will give one which has been recommended by Uffelmann as one of the best.

In the first place, it is necessary to extract the fusel oil that may be contained in any spirituous liquid (such as alcohol, whiskey, brandy, etc.) by dissolving it out with ether or chloroform. For this purpose, the liquid is evaporated at as low a temperature as possible, until only a watery residue or only a slight residue remains. This is then shaken several times with ether or chloroform, and the ethereal or chloroformic solutions evaporated in a porcelain capsule until all the volatile solvent has escaped. Any fusel oil that has been present in the sample will now be contained in the residue. A test-liquid is now freshly prepared by dissolving one part of methyl-violet in 100 parts of water, and adding enough of a two-per-cent hydrochloric acid to render the liquid decidedly green. Of this liquid about 3 or 4 times as much in volume as the residue in the capsule amounts to is allowed to run into the latter. If any fusel oil was present, there will appear *immediately* some *reddish-blue* droplets which will float upon the surface of the still green or greenish liquid. This is due to the fact that the fusel oil has the property of extracting from the slightly acidulated green solution of methyl-violet some portion of the latter in its undecomposed form, with its natural reddish-blue color. Ethereal oils can produce the same result as fusel oil, but a great deal of shaking is necessary to make them extract the color, and it is then only pale blue, not reddish-blue, and never appears by merely pouring in the test-liquid as above directed.—After *Dingler's Pol. J.*, 261, 439.

No. 1,855.—**Oil of Rhodium** (S.).

Oil of Rhodium was formerly distilled from Lignum Rhodii, derived from *Convolvulus Scoparius* L. and (according to De Candolle) probably also from *Convolvulus floridus* L. It was at one time erroneously supposed to be derived from *Genista canariensis* L. Rhodium wood, or Canary Islands rose-wood, is seldom to be had in the market at the present time. It yields on distillation an essential oil which has some remote resemblance to oil of rose, and used to be largely employed to adulterate the latter before oil of rose geranium made its appearance. The American or Jamaica rose-wood is derived from *Amyris balsamifera* L. This is only used in cabinet work, and no volatile oil is obtained from it. The name *Lignum* and *Oleum Rhodii* is said to be derived from the fact that the Canary Islands rose-wood reached the continent by way of Rhodus, where Spanish merchants had settled already in the 15th century. What is now sold in the market as Oil of Rhodium is probably always an artificial mixture. The usual components are said to be oil of rose geranium and oil of sandal-wood.

No. 1,856.—**Methylal** (Dr. G. K.).

This is one of the new hypnotics recently recommended, but up to the present time only rarely employed, at least in this country, so far as we have been able to learn. It is a member of the group of *acetals*, which are compounds formed by the union of aldehydes with alcohols, water being eliminated during the reaction. For instance, ordinary aldehyde (ethylic aldehyde) is $C_2H_4O$. When this unites with 2 molecules of alcohol, $2C_2H_5.OH$, there is formed ethylic acetal, usually called merely "acetal," $C_6H_{14}O_2$ or $CH_3.CH.(C_2H_5.H)_2$. *Methylal* is the acetal of the methylic series, sometimes also called *formal*, being the dimethylate of methene, $CH_2.(CH_3.O)_2$ or $C_3H_8O_2$. This is a colorless, mobile liquid, of the spec. grav. 0.8551 at 17°C., boiling at 42°C., soluble in water, alcohol, fats, and ethereal oils, of a burning, aromatic taste, and possessing an odor reminding one of chloroform and acetic acid. It has been used as a hypnotic hypodermically, and with good effect, according to some reports. It has also been recommended as a liniment in nervous affections, and as an antidote in strychnine poisoning.

No. 1,857.—**Urethan** (M. S.).

We have published various articles explaining the chemical and therapeutical properties of this hypnotic (see AM. DRUGG., 1885, 204; 1886, 209, 216, 200). The reports on its usefulness are very contradictory. To judge from the results so far obtained with it in the public hospitals of the city of New York, it is by no means to be relied on as a general and safe soporific. Sometimes it produces gastric disturbances. The same is reported by other recent writers. Drs. Otto and König have tried it in the stage of excitement of paralytic patients, and found it almost or entirely useless. But in some cases, particularly in children, it was found moderately effective.

Dr. H. Rottenbiller, of Pest, has recently reported that he has used urethan successfully upon the insane, by hypodermic injection. He used from 1 to 3 injections of 5 minims each of a 30% aqueous solution of urethan, and succeeded thereby in producing a quiet sleep lasting 6 or 8 hours, without untoward symptoms or the formation of abscesses.

No. 1,858.—**Bartholow's Depilatory** (N. Y.).

Prof. Bartholow recommends a mixture of

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|---|---|
| Sulphide of Barium | 1 part |
| Caustic Lime | 1 part |
| Starch | 2 parts |

which is to be mixed with alcohol, and allowed to remain in contact with the parts until the hairs can be easily removed.

No. 1,859.—**Free Mineral Acids in Vinegar** (E. F. H.).

Free mineral acids may be detected and estimated in vinegar in various ways. A very simple method for detecting *sulphuric acid* is as follows:

Evaporate the vinegar (say about 4 fl. oz.) to a small bulk, allow to cool, and add about five times its volume of strong alcohol. All the sulphates will thereby be precipitated, but any free sulphuric or other mineral acid which has not been volatilized at the temperature of evaporation will be dissolved by the alcohol. The alcoholic solution is then filtered, diluted with water, the alcohol dissipated by boiling, the sulphuric acid precipitated by barium chloride, and the precipitate washed, dried, ignited, and weighed.

A still more delicate method is that of Casali. 20 Gm. of the vinegar is ground up in a mortar with about 80 Gm. of finely powdered porcelain (previously treated with hydrochloric acid to remove every trace of alkali, and thoroughly washed and dried), so that the mixture is not moist to the touch. If necessary, more of the powder must be taken. The whole is then ground up with 50 C.c. of ether (previously shaken with magnesia and water to neutralize any trace of acid), filtered and washed with ether. The filtrate is then shaken with a little distilled water, the ether distilled off, and the residue precipitated with barium chloride, 0.0005 Gm., or as little as $\frac{1}{120}$ grain of free sulphuric acid can be detected in this manner.

Jähring tests for free mineral acids by adding sulphide of zinc which is unaffected by acetic acid. If either sulphuric or hydrochloric acids are present, the odor of hydrosulphuric acid will be given off.

Hager recommended the following test. Into a small test-tube place 1 or 2 drops of Gurjun balsam, together with 35 or 40 drops of pure acetic acid and warm to about 140° F. Now add 2 to 3 drops of the vinegar to be tested. If free hydrochloric acid was present, there will immediately be produced a bluish-violet color. Sulphuric acid produces the same tint, but more slowly.

No. 1,860.—**Jamboo or Jambool Seeds** ("Pharmacy").

Jamboo or Jambool seeds have recently been highly recommended, in form of powder, as a remedy in diabetes. The use of the drug is said to diminish the amount of urine secreted, and to cause the disappearance of sugar within 48 hours after taking the drug, which is administered in doses of about 5 grains every few hours. During the time that the patients are under the influence of the drug, they are said to be able to take amylaceous food with impunity.

Jamboo (*Jambu* or *Jambû*) is the Sanskrit name of the tree and of the fruit. In the Bombay presidency it is known, at the present time, as *jâmbûl* (according to Prof.

W. Dymock, "Vegetable Materia Medica of Western India." 2d ed., 8vo, Bombay, 1885).

The seeds are derived from *Eugenia jambolana* Lam. (= *Syzygium jambolanum* De C. *Prodrom.* III., 259), a large and beautiful tree found almost over the whole of India, being used both as an ornamental and shade tree, as well as for its fruit. It is also indigenous in the Indian Archipelago and in Australia. The bark is strongly astringent, and dyes excellent durable browns; it also yields an extract resembling kino.

The Jambu tree plays an important rôle in Hindu mythology. The Purâna's (particularly the Vishnu-Purâna), in giving an account of the created world, place the immense Mount Meru in the centre of a group of seven large insular continents, one of which comprises India itself. Upon the mountain Gandhamâdana, situated upon this continent, stands an immense Jambu tree, eternally alive and bearing flowers and fruit, forming, as it were, the grand standard of India. From this tree the whole continent receives the name Jambu-dvîpa, and this was subsequently used by the Buddhists as a name for India itself. The legend says that this gigantic tree bears fruit as large as elephants; when they fall upon the crest of the mountain from being over-ripe, they burst and pour out juice enough to form the Jambu River, the waters of which are drunk by the inhabitants, and render them content and happy, so that they suffer neither from excessive labor ("perspiration"), nor from bad effluvia of the soil, nor from old age.

All this, and much more that could be said, shows in how great esteem the Jambu tree has always been held in India.

Prof. Dymock describes the fruit and bark as follows: "The fruit, unless improved by cultivation, is about the size and shape of an olive, of a purple color, and very astringent; within it is a white, papery shell, inclosing a large green kernel, also very astringent. The bark is gray and fissured externally; internally it is red and fibrous; its minute structure is remarkable in having several rows of very large, pitted, oblong cell-walls, which can be easily seen with the naked eye. The odor is like that of oak-bark, and the taste very astringent. No analysis of the fruit or bark appears to have been made."

At present there is only very little of the seed obtainable here at New York, but an invoice is shortly expected.

No. 1,861.—**Deodorizing Alcohol** (L. R. & Co.).

These correspondents request us to state how they may deodorize alcohol. They fail, however, to inform us what the nature of the odorous matter is which the alcohol contains. It depends entirely upon this whether the operation of deodorizing it will be successful or not, within economical limits. We would, therefore, suggest that we be informed first what odorous matters the alcohol contains or what it had been used for; and second, what its strength is.

No. 1,862.—**Nitroglycerin Preparations** (J. S. D., and Newark).

The most simple and convenient method of administering nitroglycerin in asthma, Bright's disease, and other affections, is in form of *alcoholic solution* containing 1 per cent of nitroglycerin, or, as it is also called, glonoin. Regarding this, we have to state that, up to about six months ago, the quality of the commercial solution was perfectly satisfactory. Only a few houses had the facilities or had made arrangements for supplying the solution, nearly all other dealers purchasing their supply from these firms. About six months ago, it was observed by a number of physicians that the article then supplied had apparently no physiological effect whatever and, on inquiry among others, this was confirmed. The previous uniform reliability of the commercial solution, contrasted with its sudden apparent inertness, led to the suspicion that some mistake had been made in making the 1-per-cent dilution on the part of the firms engaged in its production. So far as we are aware, these firms obtain their supply direct from certain nitroglycerin works, where the latter is dissolved in 9 parts of alcohol, thus making a 10-per-cent solution. It is in this strength that it reaches the firms alluded to, and they subsequently dilute to 1 per cent. In doing this, an error was probably committed in this way that a quantity of the solution already reduced to 1 per cent was subsequently mistaken for a 10 per-cent-solution, and again diluted to 1%, which produced, of course, a 1 in 1,000 solution, which is altogether too weak for general use. The attention of these firms and of wholesale houses was directed to this fact by one of us, and all stock containing nitroglycerin, and found inert, was at once cancelled. Since then there has been no trouble. Great care is now exercised in ascertaining the proper strength of the solution.

While it is a comparatively simple matter to determine the nitroglycerin held in solution by the alcohol, by precipitating it with water, separating, and weighing, yet this is not an attractive operation, as it may lead to accidents in the hands of the unskilled. For practical purposes the best test is a physiological one. Place *one* drop of the 1% solution upon your tongue. In about 5 to 10 minutes a peculiar form of frontal and temporal headache will be felt which will pass off in the course of an hour or so. Any sample which fails to produce this symptom after the administration of 1 drop (or on repeated trial, 2 drops), may be rejected as worthless.

*Nitroglycerin tablets.*—These are officinal in the British Pharmacopœia, but no method is there given for their preparation. They may be made by dissolving nitroglycerin in ether, and mixing a definite quantity of this solution with a weighed amount of powdered chocolate to which some powdered gum arabic may be added. For instance, the following proportions will produce tablets containing 1%:

| | |
|---|---|
| Nitroglycerin | 1 part. |
| Chocolate, powd | 130 parts. |
| Gum arabic, powd | 70 " |

To be divided into 100 tablets. The nitroglycerin requisite for making these may be obtained by precipitating the 10% solution with water, best in burette, allowing the nitroglycerin to settle, then transferring as much of it as can be withdrawn to a tared flask, and to add to it the requisite amount of ether to dissolve it. The powders are then taken in the above-named proportions.

These tablets may also be made after the process of Dr. Fuller (see our preceding number).

*Caution.*—We desire to draw attention to a possible source of danger in connection with the alcoholic solution of nitroglycerin. If a vessel or bottle containing the 1-per-cent solution is allowed, by oversight, to remain uncorked, and should be diminished in volume by evaporation, it will become so much more energetic in its effects that it may produce distressing symptoms. Moreover, should any of the solutions, *particularly the ten-per-cent solution*, be broken, in a place where the liquid might be soaked up by wood or other porous material, a dangerous explosive might thereby be produced. In our judgment it would be preferable to choose another menstruum for the nitroglycerin. Such a menstrum should be non-volatile and should form with the nitroglycerin a non-explosive mixture, the same as is the case with ethylic and methylic alcohols. It remains to be seen what will turn out to be the best solvent, possibly some fixed oil. For the present we advise to prepare both the 10 and the 1% solutions so that they contain at least 25 per cent by volume of glycerin.

No. 1,863.—**Rosin Oil** (Rosin).

This oil is made use of not only for legitimate, technical purposes, but also for adulterating other oils.

When common pine rosin (colophony) is distilled (dry) in iron retorts, it splits up into a number of substances which may be enumerated as follows: About 5⅓% of watery liquid containing pyroligneous acid; about 11⅓% of crude, light rosin oil, of spec. grav. 0.890; about 50% of crude, heavy rosin oil (having a bluish color), of spec. grav. 0.930; about 10⅓% of still heavier oil (called in Germany "Cod-Oel" or "Thran-oel") of spec. grav. 0.940; and about 18⅓ of pitch, the rest being lost.

The light rosin oil is a mixture of low-boiling hydrocarbons with volatile acids and other bodies. When it has been properly purified, it is known abroad as camphine or pinoline, though in this country these products are not designated by special names.

The crude, *heavy* rosin oil is purified by boiling with water, then drawn off into large tanks, where it is mixed with plaster of Paris, which, during gradually settling, carries down with it all suspended matters. The oil, partly purified in this manner, is used for axle-grease and other common purposes.

The fully purified rosin-oil, so-called "Cod-Oel," is prepared in the following manner: The usual charge, say about 800 lbs. of crude rosin oil, is put into a well-cleansed still, and 60 lbs. of freshly prepared solution of caustic soda of spec. grav. 1.355 (38° B.) are added, together with 20 lbs. of freshly prepared milk of lime. The mass is well stirred during one hour, and then subjected to distillation at a moderate heat. At first, the water and some light rosin oil pass over, afterwards the heavy oil of a light-yellow color. Towards the end of the distillation, the oil becomes darker and of a greenish-brown color. The light-yellow oil may be rendered as colorless as water by rectifying it with more solution of soda and milk of lime. The first and last portions of this are caught separately and added to the next charge. The middle fraction constitutes the fully purified oil.

No. 1,864.—**To Render Glycerin and Glue Insoluble** (J. E. L.).

"How can a mixture of glue and glycerin be made insoluble in water?"

The combination of glue and glycerin is a mechanical one only, that is, glue is soluble in water, and this solution is miscible with glycerin; the water may be evaporated and the glue and glycerin will remain, so that the former may be said to be dissolved by the latter, though the compound may be quite tough. Indeed glue is soluble, even in the cold, in glycerin, but it requires a long time to be dissolved. Now the glue may be rendered insoluble by combining it with chromic acid and exposing it to the sun-light. If a rather thick bulk of the mixture is to be treated, render the mixture of glue and glycerin liquid on a water-bath, in a room lit by artificial (yellow) light only; incorporate with the solution some hot solution of bichromate of potassium. Of the latter about 1 oz. is required for every 3 lbs. of glue. The effect of sunlight upon such mixtures is that the chromic acid is reduced to chromic oxide, which combines with the glue apparently only mechanically, and renders it insoluble in water. According to Eder, the glue is not altered chemically. Now the glycerin, mixed with the glue, is susceptible of being acted on by the chromic acid, and to be decomposed if it remains long in contact with it. But under ordinary circumstances, we believe it will remain mostly unaffected. It will probably remain mechanically inclosed between the molecules of glue and chromic oxide. At all events, only that which is near the surface will probably be dissolved out by water. This point you will have to determine yourself. Instead of bichromate of potassium, chrome alum may be used, according to Swan.

No. 1,865.—**Manufacture of Oiled Silk** (J. E.).

"Will you kindly give the composition of oiled silk and the manner of applying the compound to silk or muslin?"

Oiled silk or oiled muslin is prepared by stretching suitable pieces of colorless silk or muslin fabrics upon frames, and applying to them a varnish made from 6 parts of boiled linseed oil, ¼ part of rosin, and ⅛ part of turpentine. According to others, the varnish is preferably made by boiling the 6 parts of oil with 1⅛ parts of litharge and ⅛ part of minium. The manufacture of these articles is not without some risk, as the rapid drying of fatty oils in contact with combustible material may cause spontaneous ignition. Several cases of the destruction of oil-muslin factories have occurred within the last decade or so.

No. 1,866.—**Improved Fehling's Solution** (U. S.).

We have published the composition of Schmiedeberg's improved Fehling's solution on page 229 of our volume for 1885, where a note will also be found on the chemical character of mannite, which is recommended as a substitute for Rochelle salt. The formula is briefly as follows:

| | | |
|---|---|---|
| Copper sulphate, crystals | 34.632 | Gm. |
| Mannite, pure, cryst. | 16 | " |
| Solution of Soda, spec. grav. 1145 | 480 | C.c. |
| Distilled Water | q. s. to make 1 | liter. |

Dissolve the sulphate of copper in about 200 C.c. of water, add the mannite previously dissolved in 100 C.c. of water, then add the soda solution, and finally make up with water to 1 liter.

The solution keeps extremely well. Even should it deposit a small trace of oxide of copper on standing (owing perhaps to the presence of slight impurities), it will still be fit for use.

There is, however, one feature connected with this which has not been alluded to. This is the quantitative value of the solution towards glucose. The value of the original Fehling's solution towards the latter substance, under exactly known conditions of dilution, temperature, etc., has been very carefully determined by Soxhlet. It remains, however, to be seen whether the substitution of mannite for Rochelle salt will make any difference in this relation.

That the solution, made with mannite, keeps well can be confirmed by us from practical observation. So long as the reagent is to be used only qualitatively, its true quantitative relation to glucose need not be taken into consideration. But this must be done as soon as it is to be used for quantitative purposes.

No. 1,867.—**Solution for Making Soap-Bubbles** (H. H. S.).

As a supplement to our answer to query 1,842 in our last issue, we give the following formula of a solution which is said by Mr. J. Boyle, of Glasgow (in the *Chem. and Drugg.*), to yield bubbles of very large size which do not burst readily and sometimes will last for many hours if properly protected:

| | | |
|---|---|---|
| Castile Soap, shavings | 1½ | parts |
| Glycerin | 15 | " |
| Water | 20 | " |

1,868.—**King's Expectorant** (R. & Co.).

This was originated by Dr. John King, of Cincinnati, the author of the "American Dispensatory." It is prepared as follows:

| | | |
|---|---|---|
| Lobelia, herb | 1 | tr.oz. |
| Sanguinaria root | 1 | " |
| Skunk Cabbage root | 1 | " |
| Wild Ginger (Asarum canadense) root | 1 | " |
| Pleurisy herb (Asclepias tuberosa) | 1 | " |
| Water, or Vinegar | 16 | fl. oz. |
| Alcohol | 48 | " |

Reduce the drugs to a moderately fine powder, and form a tincture, by maceration or percolation, using more of the menstruum, in the above-given proportions, so as to obtain 4 pints of tincture.

No. 1,869.—**Metallic Cement** (Boston).

Probably the best metallic cement is that known as "Diamond Metallic Cement." It is prepared by intimately mixing 10 parts of prepared chalk, 15 parts of litharge, 50 parts of graphite, and 5 parts of dry slaked lime, and thoroughly incorporating with it 20 parts of linseed oil. This compound must be warmed before use.

Another excellent cement is obtained by intimately mixing finely powdered oxide of lead with just enough glycerin to make it plastic. This hardens very soon on exposure to air.

Many others may be mentioned, but the above will be sufficient for the purposes of our correspondent, who wants to cement iron-tubes into an iron-tank without rubber washers below the lock-nuts.

No. 1,870.—**Ink for Type-Writers, etc.** (U. S. A.).

In answering query 1,810, we referred our correspondent to a paper by Mr. Furst published in our May number of 1886. He writes to us, however, that he did not have reference to ink that was to be used on a *ribbon*, but to ink that is to be used in the Hall type-writer and in rubber-stamps, where the impressions are taken directly from the type.

We have several formulæ on our files for this purpose, but cannot say how well these will work, as we have had no experience with them. Here are several:

Dissolve the desired aniline color (which must be water-soluble) in 10 parts of water to saturation, or at least to such an extent that the required depth of color is obtained. In this dissolve 10 parts of best gum arabic by maceration and subsequent heating; finally, add 10 parts of glycerin.

Dissolve 20 parts of the aniline color in 80 parts of boiling water; then add 10 parts of glycerin and 5 parts of syrup. This is given by Hager, who also recommends to preserve it from spoiling by adding to each 100 Gm. of the preparation 5 drops of sulphide of carbon.

From considerable experience which we had with the preparation of colors suitable for stencilling, we venture to make a suggestion. It will be seen by examining the last-mentioned formula that it must be quite liquid, probably more so than is desirable. Now, the best "thickening" medium for such mixtures, and one which imparts to them also a tendency to dry more rapidly, is *dextrin*. If we had to make such an ink, we would try various proportions of water, glycerin, dextrin, and coloring matter, until we had struck the proper consistence. Some of the aniline colors used for such purposes are sold in hard lumps. They are, however, easily dissolved by boiling with a little water to which the glycerin may be added at once.

Our correspondent also wants to know what will best remove from paper the *aniline purple* ink he wrote his letter with. This may be done by using a moderately strong alcoholic solution of oxalic or citric acids.

No. 1,871.—**Putz-Pomade** (Dr. B.).

The compound mentioned in our November number, page 218, as being composed of chalk 250, white bole 100, carbonate of lead 125, magnesia 20, and oxide of iron 20 parts is known as Belgian Putz-Powder, and probably sold dry in form of powder. We do not know it from personal observation. We do not think that these ingredients are the same as those contained in any of the commercial putz-pomades, which are made with oleic acid or other fatty substances. These putz-pomades differ very much in composition. Some consist of Armenian bole with enough oleic acid to make a paste, and some flavoring ingredient, such as oil of mirbane. Others contain rotten stone, or oxide of iron, or siliceous earth.

No. 1,872.—**Prescription Query** (B.).

This correspondent sends us a prescription which calls for

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|---|---|
| Pulv. Cantharidis | gr. 10 |
| Olei Therebinthinæ | fl ʒ 3 |

from which 40 pills are to be made.

We can hardly realize that any physician of common sense would write such a prescription. Each "pill" would, of course, have to contain 4½ *minims* of oil of turpentine; and to hold this quantity of liquid, together with ¼ grain of cantharides, a large bulk of inert powder would be necessary. The ingredients can be put into capsules, perhaps, but even then some addition of an inert powder will be advisable, powdered althæa root being perhaps one of the best.

No. 1,873.—**Iron Wire for Iron Preparations** (B.).

The best iron wire for making iron preparations is the fine, *bright* (not dull and black) piano wire of the trade. Other kinds of fine wire, such as card-teeth are made from, or card-teeth themselves, and iron turnings thoroughly deprived of grease or oil, are equally suitable.

The formula for making syrup of iodide of iron in the United States Pharmacopœia is the one which you should follow.

◆

**Morphiomania** has made great strides in France within the last few years. In Paris its victims almost rival those of alcoholism. At Bellevue (Paris) a hospital has been opened for the care, and, if possible, the cure of those patients. The cure of it is, however, very rare. It is found that both the use and the deprivation of the drug create a tendency to suicide in the victims; and at Bellevue there are cushioned rooms for some of the patients, and a constant watch kept on all.—*Chem. and Drugg.*

## FORMULAS.

### SELECTIONS FROM THE HOSPITAL FORMULARY

OF THE DEPARTMENT OF PUBLIC CHARITIES AND CORRECTION OF THE CITY OF NEW YORK.

(Continued from page 14.)

### V. MIXTURES FOR EXTERNAL OR TOPICAL APPLICATION.

#### 173. *Acidum Carbolicum Iodatum* (*Iodized Phenol*).

℞ Iodi..........................gr. 240
Acidi Carbolici..............℥ 1
Glycerini.....................fl. ℥ 1

Dissolve the iodine in the carbolic acid with the aid of a gentle heat; then add the glycerin.

#### 174. *Balsamum Styracis.*

℞ Styracis Purificati.........part. 40
Olei Olivæ................. " 5
Alcohol..................... " 5

Mix. Used for the same purposes as Balsam of Peru.

#### 175. *Collodium Carbolisatum* (*Carbolic Collodion*).

℞ Acidi Carbolici..............gr. 30
Olei Ricini...................♏ 30
Collodii..............q. s. ad fl. ℥ 1

Dissolve and mix.

#### 176. *Collodium Iodoformi.*

℞ Iodoformi.....................gr. 60
Ætheris Fortioris...........♏ 30
Collodii.............q. s. ad fl. ℥ 1

Dissolve and mix.

#### 177. *Collunarium Quininæ* (*Quinine Nasal Douche*).

℞ Quininæ Sulphatis..........gr. 1
Sodii Chloridi..............gr. 30
Aquæ.........................fl. ℥ 1

Dissolve. Used in nasal catarrh, hay-fever, etc., a little being placed in the palm of the hand and drawn up the nose, or applied as a spray.

#### 178. *Collyrium Atropinæ.*

℞ Atropinæ Sulphatis..........gr. 2
Aquæ........................fl. ℥ 1

Dissolve. Two drops to be put into the eye three times daily, in iritis and keratitis. (*Dr. W. F. Mittendorf.*)

*Note.*—To prevent this solution from spoiling, 5 grains of boric acid may be dissolved in each fluid-ounce.

#### 179. *Collyrium Plumbi et Opii* (*Bureau O. D. P.*).

℞ Liquor. Plumbi Subacet...fl. ʒ 2
Vini Opii.....................♏ 20

Mix. Add six drops of the mixture, previously well shaken, to half a tumblerful of water, and bathe the eyelids six times daily with it. In blepharadenitis. (*Dr. W. F. Mittendorf.*)

#### 180. *Embrocatio Iodi, McCready* (*McCready's Paint*).

℞ Chloroformi..................fl. ʒ 1
Tinct. Aconiti................
Tinct. Iodi Comp.........āā fl. ʒ 2

Mix.

#### 181. *Embrocatio Iodi et Tiglii* (*Carson's Paint*).

℞ Olei Tiglii.....................♏ 30
Ætheris Fortioris............♏ 60
Tinct. Iodi Comp............fl. ʒ 2½

Mix.

#### 182. *Gargarisma Aluminis Ferrati Compositum.*

℞ Ferri et Ammonii Sulph. (U.S.Ph.),
Potassii Chloratis..............āā ʒ 1
Aquæ..........................fl. ℥ 16

Dissolve. Used as a gargle, mornings and evenings. In subacute pharyngitis, in ear-troubles. (*Dr. W. F. Mittendorf.*)

#### 183. *Gargarisma Boracis.*

℞ Sodii Boratis.....................ʒ 2
Glycerini........................fl. ℥ 1
Aquæ Rosæ..........q. s. ad fl. ℥ 8

Dissolve and mix.

#### 184. *Glyceritum Acidi Tannici* (*Glycerite of Tannic Acid*).

℞ Acidi Tannici.....................℥ 1
Glycerini.............q. s. ad fl. ℥ 4

Triturate the tannic acid with 3 fl. oz. of glycerin in a heated mortar to a smooth paste; then place it on a water-bath, and stir frequently until the acid is dissolved. When cold, make up the volume to 4 fluid ounces by the addition of glycerin.

#### 185. *Glyceritum Gelatini* (*Glycerite of Gelatin. Glue Burn Mixture*).

℞ Gelatini Albi.................. ℥ 7½
Glycerini......................fl. ℥ 1
Acidi Carbolici...............fl. ʒ 2
Aquæ..........................fl. ℥ 16

Soak the glue in the cold water until it is soft; then heat it on a water-bath until it is melted. Add the glycerin and continue heating until a firm, glossy skin begins to form on the surface of the mixture, in the intervals of stirring. Now add the carbolic acid and mix intimately.

*Note.*—This mixture may be kept ready prepared, and is best preserved in well-closed glass or porcelain jars. When it is wanted for use, it is heated on a water-bath until just melted, and applied with a soft, flat brush over the burned part, where it will form a strong, flexible skin.

#### 186. *Glyceritum Sulphuris* (*Sulphur Paste*).

℞ Sulphuris Sublimati..........ʒ 1
Ætheris Fortioris............fl. ʒ 3
Glycerini.......................fl. ℥ 1

Mix.

#### 187. *Injectio Bismuthi Composita.*

℞ Zinci Sulphatis...............gr. 3
Bismuthi Subnitratis..........ʒ 1
Mucilaginis Acaciæ..........fl. ʒ 2
Aquæ..............q. s. ad fl. ℥ 1

Dissolve and mix.

#### 188. *Injectio Hydrargyri Bichloridi.*

℞ Hydrargyri Bichloridi.......gr. ⅛
Aquæ.........................fl. ℥ 4

Dissolve. (*Dr. S. Alexander.*)

#### 189. *Injectio Quercus, Heaton* (*Heaton's Fluid*).

℞ Morphinæ Sulphatis........gr. 1
Extr. Quercus Albæ Fl.....fl. ℥ 3½

Dissolve and mix. Used as an injection, in quantities of 5 or 10 minims, into the inguinal canal, after the reduction of hernia, the object being to cause sufficient inflammation to produce obliteration.

#### 190. *Injectio Zinci et Belladonnæ.*

℞ Zinci Sulphatis...............gr. 10
Extr. Belladonnæ Fl..........♏ 15
Aquæ..........................fl. ℥ 4

Dissolve and mix. (*Dr. H. Raphael.*)

#### 191. *Injectio Zinci et Opii* (*Bowden's Injection*).

℞ Zinci Acetatis..............gr. 10
Vini Opii
Tinct. Catechu Comp....āā fl. ʒ 2
Aquæ...............q. s. ad fl. ℥ 4

Dissolve and mix.

#### 192. *Injectio Zinci Sulphocarbolatis.*

℞ Zinci Sulphocarbolatis.......gr. 12
Aquæ.........................fl. ℥ 3

Dissolve. (*Dr. S. Alexander.*)

#### 193. *Irrigatio Hydrastini.*

℞ Hydrastini Sulphatis (flavi)..ʒ 1
Acidi Borici.....................ʒ 2
Tinct. Opii.....................fl. ℥ 1
Olei Gaultheriæ...............♏ 20
Aquæ................q. s. ad fl. ℥ 128

Dissolve and mix. For irrigating the urethra. (*Dr. J. W. S. Gouley.*)

*Note.*—Much confusion exists regarding the terms *hydrastin* and *hydrastine.* Until recently, the name *hydrastin* was applied, commercially and in eclectic practice, to a product obtained as a yellow precipitate by adding hydrochloric acid to a liquid extract of hydrastis, or by first precipitating the liquid extract with water and afterwards treating the precipitate with hydrochloric acid. It has been the custom of the eclectics to apply the name of the plant, changed so as to terminate in—*in*, to so-called "resinoids," or precipitates produced in the alcoholic liquid extracts by mixing them with water, with or without the intervention of acids. The yellow precipitate thus obtained from hydrastis is, in reality, a complex mixture, chiefly consisting of *hydrochlorate of berberine*, which latter alkaloid exists in *hydrastis*, along with other principles. Since other acids, besides hydrochloric, have also been used for producing this precipitate, the products are now usually distinguished as "*muriate of hydrastin*," "*sulphate of hydrastin*," etc., as the case may be, but all these are yellow and consist mainly of the respective salts of berberine. Hydrastis also contains a white alkaloid, the true *hydrastine* (latinized: *hydrastina*). Most of the recorded therapeutic experience has hitherto been based upon the yellow *alkaloid berberine*, misnamed *hydrastin* (latinized: *hydrastinum.*)

The salt which has so far been used in the above preparation, in the public institutions of this Department, is the commercial yellow "sulphate of hydrastin."

Besides the above, Lloyd's Colorless Hydrastis has also been used with great satisfaction.

#### 194. *Linimentum Anodynum* ("*Jacob's Oil.*")

℞ Camphoræ,
Chloral.........................āā ʒ 2
Chloroformi,
Ætheris Fortioris.........āā fl. ʒ 2
Tinct. Opii,
Olei Sassafras.............āā fl. ʒ 1
Linim. Saponis....q. s. ad fl. ℥ 16

Dissolve and mix.

#### 195. *Linimentum Opii Compositum* (*Canada Liniment*).

℞ Tinct. Opii....................fl. ℥ 1
Spir. Camphoræ,
Alcohol,
Olei Menthæ Pip.,
Aquæ Ammoniæ...........āā fl. ℥ ½
Olei Terebinthinæ...........fl. ℥ 4

Dissolve the oil of peppermint in the alcohol; add the spirit of camphor, then the oil of turpentine and tincture of opium, and lastly, the water of ammonia.

#### 196. *Linimentum Stimulans.*

℞ Aquæ Ammoniæ,
Olei Terebinthinæ..........āā fl. ℥ 1
Linim. Camphoræ.............fl. ℥ 2

Add the camphor liniment to the water of ammonia in several portions, shaking after each addition. Lastly, add the oil of turpentine.

#### 197. *Linimentum Terebinthinæ Acidum* (*Brodie's Liniment*).

℞ Acidi Sulphurici..............fl. ʒ 1
Olei Olivæ,
Olei Terebinthinæ..........āā fl. ℥ 1

Add the acid gradually to the olive oil, stirring in a mortar. When the mixture is cold, add the oil of turpentine, and mix.

#### 198. *Liquor Boro-Salicylicus Compositus* (*Dobell's Solution*).

℞ Sodii Boratis,
Sodii Bicarbonatis.........āā ʒ 2
Glycerini.......................♏ 200
Acidi Carbolici liquefacti...♏ 50
Aquæ calidæ..................fl. ℥ 16

Dissolve and mix.

*Note.*—Dr. Dobell's original formula directs the glycerite of carbolic acid of the *Brit. Pharm* The above given proportions produce practically the same result. In certain cases, Dr. Dobell recommends to replace the borax by chloride of ammonium, chlorate of potassium, or other salts.

### 199. *Liquor Boracis Salicylicus* (*Thiersch's Solution*).

| | |
|---|---|
| ℞ Acidi Salicylici | part 1 |
| Acidi Borici | " 6 |
| Aquæ | " 500 |

Dissolve and filter.

*Note*.—In filtering solutions containing salicylic acid or salicylates, *white* filtering paper, *free from iron*, must be used, to prevent the liquid from acquiring a red color.

### 200. *Liquor Bromi, Smith* (*Smith's Solution of Bromine*).

| | |
|---|---|
| ℞ Bromi | (1 av. oz.) gr. 487.5 |
| Potassii Bromidi | gr. 160 |
| Aquæ | fl. ℥ 4 |

Dissolve the bromide of potassium in the water, add the bromine, agitate, and transfer the mixture to small, glass-stoppered vials.

Used externally in gangrene. (*Dr. J. Lawrence Smith.*)

*Note*.—Bromine vapor is exceedingly irritating to the lungs, and very destructive to the metallic parts of balances. Hence, when great accuracy in weighing is not required, it is often more convenient to use at once an original bottle of bromine, such as is put up for the market. The original formula for the above solution directed one troy oz. of bromine, which would have to be weighed out. In place of this, it is recommended to use 1 avoirdupois ounce. Original bottles of bromine often have their stoppers so firmly fixed that they cannot be removed without risk. In such cases, it is best to proceed as follows:

Dissolve the bromide of potassium in 4 fl. oz. of water, and pour the solution into a deep wedgewood mortar. Take an original 1 oz. vial of bromine, clean its outside thoroughly, place it in the solution, and break the vial by a blow with the pestle. Then mix, and transfer to vials.

### 201. *Liquor Iodi Carbolisatus* (*Boulton's Solution*).

| | |
|---|---|
| ℞ Tinct. Iodi Comp. | ♏ 110 |
| Acidi Carbolici liquefacti | ♏ 40 |
| Glycerini | fl. ℥ 2½ |
| Aquæ | q. s. ad fl. ℥ 16 |

Mix the tincture with the carbolic acid, liquefied by a gentle heat; then add the other ingredients, and expose the mixture to sun-light until it has become colorless.

Used as a local application in diphtheria.

### 202. *Liquor Iodi Causticus, Churchill* (*Churchill's Iodine Caustic*).

| | |
|---|---|
| ℞ Iodi | ʒ 1 |
| Potassii Iodidi | ʒ 2 |
| Aquæ | fl. ʒ 4 |

Dissolve and mix.

*Note*.—This preparation should not be confounded with *Tinctura Iodi, Churchill* (Churchill's Tincture of Iodine), which will be found under No. 214.

### 203. *Liquor Morphinæ Boratus.*

| | |
|---|---|
| ℞ Morphinæ Sulphatis | gr. 1 |
| Acidi Borici | gr. 10 |
| Aquæ | fl. ℥ ½ |

Dissolve.

Five drops to be put in the ear every 3 hours, in acute purulent otitis. (*Dr. W. F. Mittendorf.*)

### 204. *Liquor Picis Alcalinus* (*Alkaline Solution of Tar*).

| | |
|---|---|
| ℞ Picis Liquidæ | ʒ 4 |
| Potassæ | ʒ 2 |
| Aquæ | q. s. ad fl. ʒ 10 |

Dissolve the potassa in ½ fluidounce of hot water; add the tar, and, when it is dissolved, enough water to make the volume, when cold, measure 10 fluidrachms. (*Dr. L. D. Bulkley.*)

### 205. *Lotio Flava* (*Yellow Wash*).

| | |
|---|---|
| ℞ Hydrarg. Chlor. Corrosivi. | gr. 24 |
| Aquæ Bullientis | fl. ℥ ½ |
| Liquoris Calcis | q. s. ad fl. ℥ 16 |

Dissolve the bichloride of mercury in the boiling water, and add the solution gradually to enough lime-water, under continued agitation, to make 16 fluidounces.

### 206. *Lotio Nigra* (*Black Wash*).

| | |
|---|---|
| ℞ Hydrarg. Chlor. Mitis. | gr. 64 |
| Liquoris Calcis | fl. ℥ 16 |

Add the calomel to about 2 fluidounces of the lime-water, contained in the bottle in which the preparation is to be dispensed, and agitate thoroughly. Finally, add the remainder of the lime-water, and mix by agitation.

*Note*.—The sediment in this mixture is so heavy that it can only with difficulty be transferred from a mortar, together with the liquid, into the bottle. For this reason, it is preferable to prepare the mixture as directed above.

### 207. *Lotio Plumbi Composita* (*Goulard's Lotion*, modified).

| | |
|---|---|
| ℞ Liquor. Plumbi Subacet., | |
| Tinct. Opii | āā fl. ℥ ½ |
| Tinct. Arnicæ, | |
| Spir. Camphoræ | āā fl. ℥ 1 |
| Aquæ | fl. ℥ 8 |

Mix.

### 208. *Lotio Plumbi et Opii.*

| | |
|---|---|
| ℞ Plumbi Acetatis | ʒ 2 |
| Tinct. Opii | fl. ʒ 4 |
| Aquæ | q. s. ad fl. ℥ 16 |

Dissolve and mix.

### 209. *Lotio Sulphuris Composita* (*Taylor's Lotion*).

| | |
|---|---|
| ℞ Sulphuris Sublimati | ʒ 3 |
| Spir. Camphoræ | fl. ʒ 2 |
| Sodii Boratis | ℥ 1 |
| Glycerini | fl. ʒ 3 |
| Aquæ | fl. ℥ 6 |

Dissolve the borate of sodium in the water, add the spirit of camphor, and then incorporate the mixture with the sulphur previously triturated with the glycerin to a homogeneous paste.

### 210. *Mistura pro Ambustis, Buck* (*Buck's Burn Mixture*).

| | |
|---|---|
| ℞ Tragacanthæ pulv. | ℥ 2 |
| Acaciæ pulv. | ℥ 4 |
| Syrupi Fusci, | |
| Aquæ Bullientis | āā fl. ℥ 16 |

Mix the tragacanth and acacia with the molasses to a homogeneous paste, then add the boiling water under constant stirring.

### 211. *Oleum Ricini cum Atropina* ("*Atropine and Castor Oil*").

| | |
|---|---|
| ℞ Atropinæ | gr. 2 |
| Olei Ricini | fl. ℥ 1 |

Triturate the atropine with a little of the castor oil to a smooth paste, then gradually incorporate the remainder of the castor oil, and continue the trituration until the atropine is dissolved.

One drop to be applied to the eye every half-hour. In burns of the eye by lime. (*Dr. W. F. Mittendorf.*)

*Note*.—The solution of the alkaloid in the oil may be hastened by a gentle heat. The alkaloid atropine and not the sulphate or any other salt, should be used for this preparation.

### 212. *Spiritus Ophthalmicus.*

| | |
|---|---|
| ℞ Olei Lavandulæ | ♏ 10 |
| Olei Rosmarini | ♏ 30 |
| Alcohol | fl. ʒ 1 |

Mix. To be applied to the eyelids mornings and evenings. In asthenopic eye troubles. (*Dr. W. F. Mittendorf.*)

### 213. *Tinctura Acidi Borici.*

| | |
|---|---|
| ℞ Acidi Borici | gr. 10 |
| Alcohol | fl. ℥ ½ |

Dissolve. 10 drops to be put in the ear mornings and evenings. In chronic, purulent otitis. (*Dr. W. F. Mittendorf.*)

### 214. *Tinctura Iodi, Churchill* (*Churchill's Tincture of Iodine*).

| | |
|---|---|
| ℞ Iodi | ℥ 2½ |
| Potassii Iodidi | ℥ ½ |
| Alcohol (U. S.). | fl. ℥ 13 |
| Aquæ | fl. ℥ 3 |

Dissolve the iodide of potassium in the water, add the alcohol and iodine, and dissolve by agitation.

*Note*.—This preparation should not be confounded with Churchill's Iodine Caustic, which see under No. 202.

### 215. *Tinctura Iodi Composita* (*Compound Tincture of Iodine* (*U. S. Ph.*, 1870).

| | |
|---|---|
| ℞ Iodi | gr. 240 |
| Potassii Iodidi | gr. 480 |
| Alcohol | fl. ℥ 16 |

Dissolve.

### 216. *Tinctura Iodi Decolorata* (*Decolorized Tincture of Iodine*).

| | |
|---|---|
| ℞ Iodi | gr. 500 |
| Aquæ Ammon. Fort. | fl. ℥ 3 |
| Alcohol | fl. ℥ 13 |

Mix the alcohol and stronger water of ammonia, add the iodine, and shake frequently until the latter is dissolved and the mixture has become colorless.

*Note*.—The product obtained by this or other processes no longer contains the iodine in a free state.

### 217. *Tinctura Saponis Viridis Composita.*

| | |
|---|---|
| ℞ Saponis Viridis | ℥ 1 |
| Olei Cadini | fl. ℥ 1 |
| Olei Lavandulæ | ♏ 90 |
| Alcohol | fl. ℥ 1 |

Mix. (*Dr. Tilbury Fox.*)

[To be continued.]

## Medicated Pencils.

Dr. Unna, of Hamburg, has introduced a new form of applying a variety of remedies in form of thin sticks or pencils, in the same manner as nitrate of silver is applied. Dieterich gives a list of these preparations in the *Pharm. Centralhalle*. The distinguishing title or name chosen for this form of medication is Stilus dilubilis ("Pasten-Stift").

The mass, from which these pencils are made, is prepared from starch, dextrin, sugar, and tragacanth. These are carefully mixed to a uniform powder, enough water added to make a plastic mass, and this mass is rolled out to strings of ⅛ inch in thickness, or made by pressing the mass through suitable orifices in a press (Knowlson's suppository apparatus which we illustrated in New Remedies, 1879, p. 171, would answer well for this purpose). These strings or pencils are dried upon parchment paper at the ordinary temperature, and then wrapped in tin-foil. At one end of the pencil, the label is affixed.

1. *Stilus Acidi Salicylici Dilubilis* 10% ("10% Salicylic Pencil").

| | |
|---|---|
| Salicylic Acid | 10 parts |
| Tragacanth, pd | 5 " |
| Starch, pd | 30 " |
| Dextrin | 35 " |
| Sugar, pd | 20 " |
| Water | suff. quant. |

Yields 40–45 pencils.

2. *Stilus Acidi Salicylici Dilubilis* 40% ("40% Salicylic Pencil").

| | |
|---|---|
| Salicylic Acid | 40 parts |
| Tragacanth, pd | 5 " |
| Starch, pd | 10 " |
| Dextrin | 25 " |
| Sugar, pd | 20 " |
| Water | suff. quant. |

Yields 45–48 pencils.

3. *Stilus Arsenico-Sublimati Dilubilis* 10 *et* 5% ("10% Arsenic and 5% Sublimate Pencils").

| | |
|---|---|
| Arsenious Acid, pd | 10 parts |
| Corrosive Sublimate, pd | 5 " |
| Tragacanth, pd | 5 " |
| Starch, pd | 30 " |
| Dextrin | 30 " |
| Sugar, pd | 20 " |
| Water | suff. quant. |

Yields 39–41 pencils.

4. *Stilus Cocainæ Dilubilis* 5% ("5% Cocaine Pencil").

| | |
|---|---|
| Cocaine Hydrochlorate, pd | 5 parts |
| Tragacanth, pd | 5 " |
| Starch, pd | 35 " |
| Dextrin | 35 " |
| Sugar, pd | 20 " |
| Water | suff. quant. |

Yields 48–50 pencils.

5. *Stilus Ichthyoli Dilubilis* 20% ("20% Ichthyol Poncil").

| | |
|---|---|
| Sodium Sulpho-ichthyolate | 20 parts |
| Tragacanth, pd | 5 " |
| Starch. pd | 30 " |
| Dextrin | 35 " |
| Sugar, pd | 10 " |
| Water | suff. quant. |

Yields 39–40 pencils.

6. *Stilus Iodoformi Dilubilis* 40% ("40% Iodoform Pencil").

| | |
|---|---|
| Iodoform | 40 parts |
| Tragacanth, pd. | 5 " |
| Starch, pd | 10 " |
| Dextrin | 30 " |
| Sugar, pd | 15 " |
| Water | suff. quant. |

Yields 32–33 pencils.

7. *Stilus Pyrogalloli Dilubilis* 40% ("40% Pyrogallic Acid Pencil").

| | |
|---|---|
| Pyrogallic Acid | 40 parts |
| Tragacanth, pd | 5 " |
| Starch, pd | 13 " |
| Ether Ext. Annatto | 2 " |
| Dextrin | 20 " |
| Sugar, pd | 20 " |
| Water | suff. quant. |

Yields 40–41 pencils.

[The ethereal extract of annatto directed in the formula is specified to be that prepared by Gehe & Co. The object of this addition is not stated.]

8. *Stilus Resorcini Dilubilis* 40% "40% Resorcin Pencil").

| | |
|---|---|
| Resorcin, pure | 40 parts |
| Tragacanth, pd | 5 " |
| Starch, pd | 10 " |
| Dextrin | 25 " |
| Sugar, pd | 20 " |
| Water | suff. quant. |

Yields 39–40 pencils.

9. *Stilus Saponis Kalini Dilubilis* 60% ("60% Potash-Soap Pencil").

| | |
|---|---|
| Anhydrous Potash Soap | 60 parts |
| White Bole, pd | 40 " |

Knead them together. This yields 32–34 pencils.

*Note.*—Anhydrous potash-soap is obtained by heating soft-soap (potash-soap) in a steam bath under constant stirring with a broad wooden spatula, until it no longer loses weight.

10. *Stilus Sublimati Dilubilis* 10% ("10% Sublimate Pencil").

| | |
|---|---|
| Corrosive Sublimate, pd | 10 parts |
| Tragacanth, pd | 5 " |
| Starch, pd | 25 " |
| Dextrin | 40 " |
| Sugar, pd | 20 " |
| Water | suff. quant. |

Yields 44–45 pencils.

11. *Stilus Zinci Oxidi Dilubilis* 20% ("20% Oxide of Zinc Pencil").

| | |
|---|---|
| Zinc oxide | 20 parts |
| Tragacanth, pd | 5 " |
| Starch, pd | 30 " |
| Dextrin | 25 " |
| Sugar, pd | 30 " |
| Water | suff. quant. |

Yields 32–34 pencils.

12. *Stilus Zinci Sulpho-carbolatis Dilubilis* 20% ("20% Sulpho-carbolate of Zinc Pencil").

| | |
|---|---|
| Zinc Sulpho-carbolate, pd | 10 parts |
| Tragacanth, pd | 5 " |
| Starch, pd | 25 " |
| Dextrin | 30 " |
| Sugar, pd | 20 " |
| Water | suff. quant. |

Yields 35–36 pencils.—After *Pharm. Centralh.*

**Ink for Rubber Stamps.**—Eugene Dieterich recommends the following composition for

| *Blue:* | *Parts* |
|---|---|
| Water soluble Aniline-Blue | 3 |
| Distilled Water | 10 |
| Pyroligneous Acid (Wood-vinegar) | 10 |
| Alcohol | 10 |
| Glycerin | 70 |

Mix by trituration in a mortar.

Other colors are made in the same manner, only substituting the following quantities of coloring matters for the 3 parts of blue in the above formula:

Violet: 3 parts methyl-violet.
Bluish-red: 2 parts fuchsine.
Brick-red: 3 parts eosin.
Bluish-green: 4 parts water-soluble green.
Brown: 4 parts water-soluble Bismarck brown.
Black: 4 parts nigrosin.

All aniline colors, whether used as ink for writing or for rubber stamps, should be faintly acidulated. This is here accomplished by means of the wood-vinegar.—*Pharm. Centralh.*

**Peptone Suppositories.**—Suppositories containing peptone have recently been recommended for the purpose of introducing nourishment by the rectum. The peptone to be employed for this purpose is the dry form now obtainable in the market. This corresponds to about 10 times its weight of meat. The following formula is recommended:

| | |
|---|---|
| Peptone, dry, and free from common salt | 24 grs. |
| Cacao Butter | a suff. quant. |

to make 1 suppository.

Dose for children, 1 suppository 4 times daily; for adults, double the quantity.—*Rundschau* (Prag).

**Syrup of Tamarinds** is recommended by Mr. Rozsnyay as a good corrigent for the bitter taste of preparations of *Rhamnus Purshiana* ("Cascara sagrada").—*Pharm. Journ.*

**Pilula Aloini** (or Sir Andrew Clark's Aperient Pill), recently recommended by Sir Andrew Clark in a paper in the *Lancet*, for relief of simple constipation when mechanical efforts fail to bring on motion.

℞ Aloini,
Ext. Nucis Vom.,
Ferri Sulph.,
Myrrhæ, pulv.,
Saponis..................āā gr. ½
M. *One* pill.

A pill may be taken half an hour before the last meal of the day, or just so much of one as will suffice to move the bowels in a natural way the next day after breakfast.

Sir Andrew Clark remarks that if the fæces are dry and hard, and if there is no special weakness of the heart, half a grain of ipecac may be added to each pill. Should the action of the pill be preceded by griping, and the character of the action be unequal, half a grain of fresh extract of belladonna will probably remove these disadvantages. ["Fresh extract of belladonna" evidently means the extract prepared from the fresh leaves, "Extractum Belladonnæ of the British Pharmacopœia.—Ed. Am. Dr.] If the aloin pill gripes, provokes the discharge of much mucus, or otherwise disagrees, substitute the fluid extract of cascara sagrada (Rhamnus Purshiana), and take from 5 to 20 drops in an ounce of water either on retiring to bed or before dinner. And when neither aloin nor cascara agree, you may succeed by taking before the mid-day meal 2 or 3 grains each of dried carbonate of sodium and powdered rhubarb.

## BIBLIOGRAPHY.

Die wichtigsten Heilmittel in ihrer wechselnden chemischen Zusammensetzung und pharmako-dynamischen Wirkung. Uebersichtlich dargestellt von Dr. P. C. Plugge, Prof. an der Reichsuniversität in Groningen. Mit Bewillig. d. Verf. aus dem Holländischen übersetzt von Eduard Schär, Prof. der Pharmacie am Eidg. Polytechnicum in Zürich. 8vo., Jena, 1886.

This is a compendious treatise on the most important remedies which are liable to variations in strength and in kind of effect from various causes. The subject is treated both from a pharmaceutico-chemical, and from a medical standpoint, and contains much that is of great importance to the physician to know, but which is to a great extent neglected or overlooked by him.

At the end is placed a comparative table of the strength of different medicinal substances and preparations in the more important modern pharmacopœias. A translation and abstract of one of the chapters of this work will be found elsewhere in this number.

A Manual of the Diseases of the Skin, by Balmanno Squire, M.B., Lond., etc. Fourth smaller edition. London: J. & A. Churchill, 1887, pp. 194, 8vo.

As a concise introduction to the systematic study of skin diseases, this manual has already proven itself to be acceptable.

Outline of a Plan of Study for Assistants in Pharmacy. By A. B. Prescott, Ph.D. A paper read before the Michigan State Pharmaceutical Association, Oct. 12th, 1886, pp. 16, 12mo.

El Colera en Valencia en 1885: Memoria acerca de los Trabajos realizados durante la Epidemia presentada por la Alcaldia al Exc'mo Ayuntamiente en nombre de la Junta Municipal de Sanidad. Valencia: 1886, pp. 180 fol., with numerous tables and maps.

This memoir gives an account of the cholera epidemic in Valencia, Spain, in 1885, amounting to 7,084 cases, the subject being considered under the headings: Medical Studies, Sanitary measures, Administration, and Statistics.

Seventh Annual Report of the State Board of Health, Lunacy, and Charity of Massachusetts. Supplement containing the Report and Papers on Public Health, with a General Index. Boston: 1886, pp. 357, 8vo.

The reports of the Massachussetts Board of Health have always been of exceptional value and interest, and the present volume is no exception. The special reports on malaria in eastern Massachusetts, disposal of sewage at the Massachusetts Reformatory, lead poisoning, and relative to the adulteration of food and drugs, are especially noteworthy. This volume also contains a general index to the contents of the public health supplements of all the reports published by the State Board of Health, Lunacy, and Charity.

Twenty-Second Annual Report of the Alumni Association, with the Exercises of the Sixty-fifth Annual Commencement of the Philadelphia College of Pharmacy, for the Years 1885–86. Philadelphia, Pa., 1886, pp. 204, 8vo, $0.25.

Besides several interesting papers read at social meetings of the Association, this pamphlet contains a great deal to interest the numerous alumni of the College.

American Druggist

Vol. XVI. No. 3. NEW YORK, MARCH, 1887. Whole No. 153.

[Original Translation.]

## ANTIQUE DISTILLING APPARATUS.*

Distillation, or the art of separating volatile liquids from non-volatile substances, does not seem to have been known to the Greeks and Romans. The oldest mention of it is made by Synesius, of Alexandria, who was bishop of Ptolemais in 410. The Arabic Galen, Rhazes of Bagdad, who lived in the 10th century, in his writings compared coryza with the process of distillation, for he says: "the stomach is the still, the head is the alembic, and the nose is the condenser from which the distillate drops." From this it appears that distillation must have been already generally known in that time. In fact, the Arabic medical writers make repeated mention of the process. In the 13th century, certain products of distillation, chiefly some form of distilled liquor or alcohol, were gradually introduced in the orient through Vitalis de Furno, of Basle, Thaddæus, of Florence, and Arnoldus, of Villanova. It required only a short time after it had become known as a medicine, to bring about its general use as a beverage, so that the magistrate of the city of Nuremberg found it necessary to issue an edict in 1490, strictly forbidding the sale of liquor,† on Sundays or other holidays, in houses, stores, or in public.

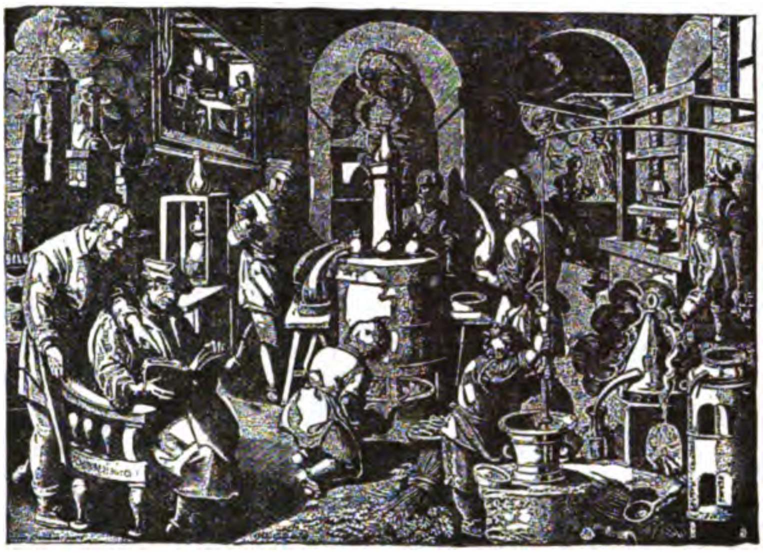

Fig. 1.—Distillation. From a copper-plate drawn by Joan. Stradanus, engraved by Ph. Galle. XVI. century. In the Germanic Museum.

According to this, the use of alcoholic beverages must have become already quite common; and as a whole series of distilled waters were then already in use in medicine, the art of distillation evidently was quite developed in the 15th century. A very exact description of the apparatus then employed is given by Hieronymus Brunschwyck in his two copiously illustrated works, "Das Nüw Buch der Kunst zu distillieren" and "Das Buch zu distillieren die zusamen gethonen ding Composita genant." Both of these have been made use of in the preparation of the present chapter by the author.

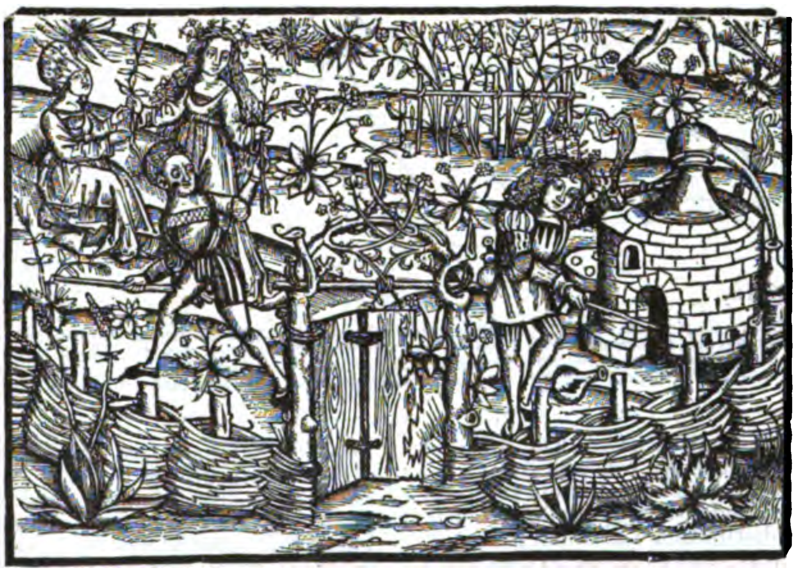

Fig. 2.—From Hieronymus Brunschwyck's work on Distillation.

According to Brunschwyck, the term *destillatio* was formerly more comprehensive than at present. The several operations of pharmacy which are now called straining, filtering, extracting, macerating, and distilling, were then all included in the art of distillation ("dropping down.")

Before the process of distillation was applied to any solid body, the latter was usually first digested in a glass-flask for the purpose of dissolving or softening it. The heat requisite for the digestion was obtained in various ways. For instance, a hole about five feet deep was dug in the cellar; into this was put a layer of unslaked lime, and upon this some horse dung. The flask or glass-vessel used for the digestion was then placed upon this and more horse dung packed around it. Luke-warm water being then poured on, the lime became gradually slaked, and a corresponding amount of heat was communicated to the packing material, which had to be renewed after two or three days. A more simple method was digestion under the rays of the sun or near a warm oven.

Solar heat was rendered more powerful by the use of a concave mirror which was placed so that the flask stood between the mirror and the sun, whereby the rays of the latter were made to fall upon the flask from both sides. Other quaint methods of heating, used in olden times, are described or directed as follows: "in an ant-hill," "in bread," "in a baking-oven," "in the belly of a horse," "in ashes," "on a water-bath," etc., etc. When digestion was directed to be made "in bread," the filled vessel was surrounded with dough, and then the whole baked in the oven with the other bread in the usual manner. "Digestion in the belly of a horse" must not be taken literally; this was performed by mixing horse's dung with hot water to a dough, and placing the vessel into this. The forms of the vessels were just as manifold as the methods of heating. It was deemed especially necessary to choose such forms as would cause any volatilized vapors to become condensed inside of the vessel, and to flow back upon the contents so as to penetrate the latter anew. Vessels of this kind are shown in the accompanying illustrations which are taken from Brunschwyck's work.

The mediæval funnels, Fig. 13, likewise had a different form from that now in use. According to Brunschwyck, they were used for separating oil and water, and for filling acid (aqua fortis) into the flasks. They do not seem to have been used for *filtering*, as the process of filtration through paper was then yet unknown. In Brunschwyck's time, turbid liquids were clarified either by straining through linen or woollen bags, or "they were distilled per filtrum." For this purpose, the liquid to be clarified was placed into a pan or plate upon an elevated place, and beside it, but on a lower level, a glass-vessel. A strip of felt or woollen fabric being then laid in the pan so that it depended into the glass, the liquid would pass, by capillary attraction, along the porous strip, and would gradually drop into the vessel. In order to avoid evaporation and loss in the case of very volatile liquids, the "destillatio per filtrum" was performed in two retorts placed at different heights (Fig. 14), the beak of the lower one being luted into that of the upper. A strip of felt was arranged to pass from one into the other as before described, and the liquid would thus be made to pass over.

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* From "Aus pharmaceutischer Vorzeit in Bild und Wort." Von Hermann Peters. (See also last number.)

† We translate the German word Branntwein generally by "liquor," as it is quite commonly used as a name for any kind of distilled spirit. Brandy is a kind of "Branntwein;" but not every "Branntwein" is brandy, in our sense of the word.

One of the oldest forms of distillatory apparatus is undoubtedly the alembic (alambik or alembik; from the Greek *ambix*, cover, and the Arabic article *al*) which was "a cover" provided with a delivery tube. Such an alembic was placed upon flasks or vessels made of metal, earthenware, or glass; both having been luted together, a receiver (*receptaculum*) was placed under the delivery tube, and the distillation could then be proceeded with. Fig. 2 shows such a distillatory apparatus, together with its oven, in full operation. Though this is represented to be erected in the open air, it is probable that such operations were not carried on in such exposed places. It is a usual habit of mediæval draughtsmen, when illustrating some substance or transaction, to place in conjunction with it such other substances or persons as have some connection with it. The distillation of medicinal waters, most of which were derived from the vegetable kingdom, was carried on, not only by apothecaries, but also by certain women who were called "*Wasserbrennerinnen*" (*i. e.*, distilleresses). Evidently, the two females in Fig. 2 are intended to represent such craftswomen, while the two male ones are meant for apothecaries. The form of still-heads or alembics, made of glass, was not always the same. The simple alembic (Fig. 16) suffered from the great drawback that most of the condensed vapors flowed back into the still, whereby the distillation was much retarded. Subsequently, the form was improved by arranging a gutter or pocket inside, from which the delivery tube was made to descend. A great defect inherent to the use of these alembics was the want of a cooling apparatus, since a large portion of the vapors undoubtedly were lost through failure of being condensed. In order to avoid this, at least partially, the size of the alembic was enlarged, so as to bring a larger surface of it in contact with the air. This was best accomplished by the form shown in Fig. 18, called "Rosenhut" (*i. e.*, rosehead), which was made of glazed clay, copper, tin, or lead, and was placed upon a flat pan of the same material. For the preparation of distilled waters, this form of apparatus was the most commonly used.

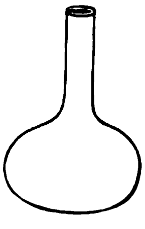
FIG. 3.

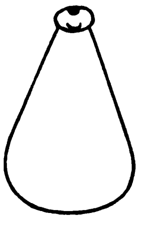
FIG. 4.

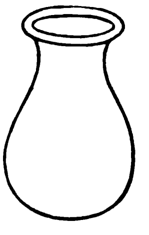
FIG. 5.

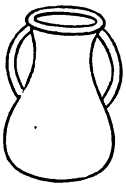
FIG. 6.

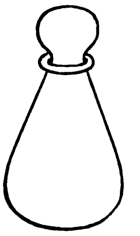
FIG. 7.

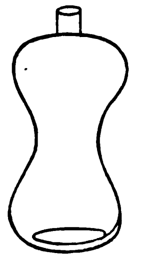
FIG. 8.

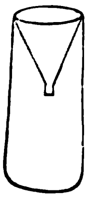
FIG. 9.

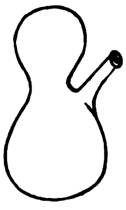
FIG. 10.

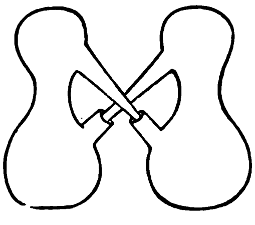
FIG. 11.

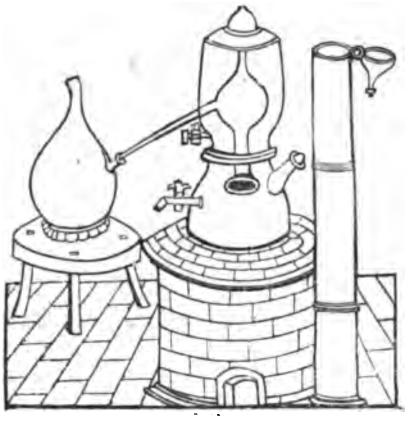
FIG. 21.

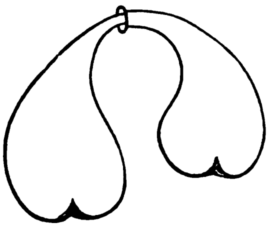
FIG. 14.

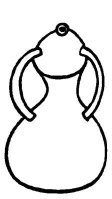
FIG. 12.

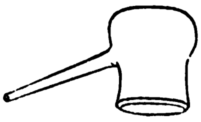
FIG. 16.

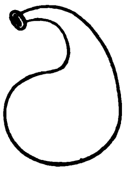
FIG. 19.

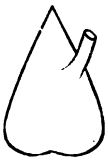
FIG. 20.

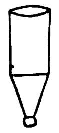
FIG. 13.

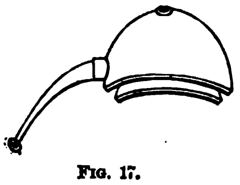
FIG. 17.

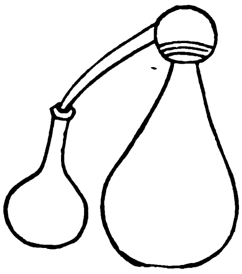
FIG. 15.

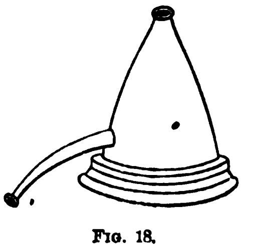
FIG. 18.

FIG. 3.—Viola. FIG. 4.—Cucurbita or simple flask. FIG. 5.—Urinale, wide-mouthed flask. FIG. 6.—Urinale with handles. FIG. 7.—Urinale with head luted on. FIGS. 8 and 9.—Circulatoria, that is reflux-condensers. FIG. 10.—Circulatorium with lateral tube. FIG. 11.—Double Circulatorium. FIG. 12.—Pelican-Circulatorium with 2 return-tubes. FIG. 13.—Funnel. FIG. 14.—Destillatio per filtrum (for volatile liquids). FIG. 15.—Cucurbit. Alembic and Receptacle. FIG. 16.—Earlier Form of Alembic. FIGS. 17, 18.—Improved Alembics. FIG. 19.—Mediæval Retort. FIG. 20.—Receptacle for Volatile Liquids. FIG. 21.—One of the Forms of Distillatory Apparatus.

The mediæval retorts (Fig. 19), on account of their unpractical form, were only suitable for the distillation of such liquids as did not foam up much, since the liquid would, in the case of others, readily be projected into the neck of the retort. For this reason, retorts (also called "*Storchenschnäbel*" or "stork bills") were not much used for distillation proper; they were chiefly employed for "*destillatio per filtrum*" or for digesting. In order to render glass-retorts, which were often made of easily fusible glass, more resistant to the action of heat (from a naked fire) and to prevent them from bending, they were covered with a mixture of clay, tow or flax-straw, horse-dung and wine, which was laid on in the thickness of about ⅛ inch, and allowed to become perfecty dry by exposure to air. If the vessel nevertheless cracked during the distillation, a strip of cloth was coated with a cement mad of red lead, chalk, flour and white of egg, and applied over the crack. To render the cloths more fire-proof and durable, they were first soaked in salt-water and white of egg and then dried. For luting together the alembic and the receiver, various cements were in use. When a higher degree of heat was necessary for the distillation, the so-called *Lutum Sapientiæ* (i. e., cement of wisdom) was employed. This consisted of a mixture of clay, horse dung, ground brick, powdered iron, salt-water, and white of egg. Another mixture for the same purpose was composed of clay, horse dung, cow-hair and salt-water. When a low heat only was employed, a paste made of water-soaked paper and starch paste was used. The receivers or receptacles were usually flasks, and in the case of very volatile liquids, a special form of glass-vessel with lateral spout (Fig. 20). Since alcohol or distilled liquor, as a beverage, was prepared in larger quantities, the glass apparatus which had formerly been in use soon become too small in capacity, besides being found wasteful on account of the absence of a condenser. Hence copper stills were introduced in the middle ages. Fig. 21 shows one which is not very different from some of those now in use. In order to cool the vapors properly, the head or alembic was made in the form of a "*Mohrenkopf*" ["nigger-head"; meaning in this case rather "Turk's head" or "turbaned head," on account of its resemblance to a head with turban]. This "*Mohrenkopf*" was constructed so that the alembic proper was always surrounded by water. With the alcoholic vapors a large proportion of water (or phlegma) naturally passed over. It was therefore necessary to "*dephleg-*

*mate*" the crude product. This was accomplished by distilling [or rectifying] it at a very low heat in a still having an alembic without gutter, and the neck of which was stopped with a large sponge soaked in olive oil. The watery vapors became (partly) condensed when coming in contact with the sponge, while the alcoholic vapors passed through it, and eventually found their way into the condenser.

In order to produce alcohol of still higher percentage, an apparatus was used, according to Brunschwyck, which may be regarded as the basis of the various forms of dephlegmators even now in use. The still was connected with a worm, which was made to pass repeatedly through a tube filled with cold water. All but the lightest vapors were thereby condensed and returned into the still, while the high-grade alcohol passed upward into the receivers. That Basilius Valentinus made use of crude carbonate of potassium (obtained by incinerating argol) for dehydrating alcohol in the XV. century is already well known, and is only mentioned here incidentally. Since the determination of alcoholic percentage by means of the alcoholometer (spec. grav.) was only rendered possible after absolute alcohol had been isolated at the end of the last century, the testing of alcohol for its strength was only an approximate one in those days. Brunschwyck thought he had attained the highest point when a linen cloth saturated with the spirit and ignited, continued to burn after the alcohol had been consumed. Of course, had the spirit been very aqueous, the remaining water would prevent the cloth from burning. Olive oil was also in use, it being required to sink when dropped into it. As olive oil has a spec. gr. of about 0.915, an alcohol of 60 per cent would satisfy this requirement. Later, the test by gun-powder was introduced. On pouring alcohol upon the powder, the latter should deflagrate after the alcohol had burned off. [The alcohol was then called "proof spirit."]

Albertus Magnus pointed out that distillates obtained from metallic apparatus are often contaminated by metal. Brunschwyck also warns against such, and an ordinance for apothecaries, passed at Nuremberg on June 7th, 1555, prescribes the use of glass apparatus for distilling liquids. As this ordinance went too far, being evidently applicable to all pharmaceutical operations, it was subsequently withdrawn, being omitted in the ordinance issued in 1592.

When lighter and lower-boiling liquids began to be introduced, the necessity arose to provide better condensers, and in consequence of this the principle adopted by the distillers of liquors were gradually adopted in pharmaceutical laboratories. The works on distillation dating from the second half of the XVI. century, therefore, show a considerable advance in this direction. Sometimes alembics were employed with two delivery tubes, each of which was separately connected with a tube passing through a cask filled with water and into a separate receiver. Yet this method was speedily recognized to be insufficient, and the next step was to lengthen the passage of the vapors by giving the condensing tube the form of a coil.

In the condensers employed in the XVI. century, no notice was yet taken of the fact that water, when heated, becomes lighter and has a tendency to rise, while cold water, being heavier, will be able to form a layer underneath it. Consequently fresh water was poured into the condenser from above at the hottest part, while it should have been made to enter it at the lowest portion.

In some cases stills were used in which provision was made to catch the more volatile and the more "phlegmatic" substances in separate receivers, by means of several delivery tubes arising from the still at varying heights.

Empyreumatic oils were prepared by means of dry distillation (*destillatio per descensum*). The oven constructed for this purpose contained a double chamber, one above the other, communicating by a central opening. Into this was laid, from above, a tinned iron diaphragm and upon it an earthen pot containing the wood or other material to be subjected to the operation, with the orifice downwards. In the lower chamber another earthen vessel with lateral outlet was fitted into the opening from below. Fire being then applied to the upper vessel, the tarry products would collect in the lower and flow out into a vessel set below the spout. When an oven was not available, the two pots, separated by the diaphragm, were fitted together, the lower one buried into the ground and fire applied to the upper. Among the oils prepared in this manner was the empyreumatic oil of the juniper, *oleum juniperi empyreumaticum*, or *oil of cade* (see this journal, 1884, page 223).

## Bank-Note Cement.

SOFTEN 1 lb. of the best glue in water, boil to dissolve and strain it very clear; boil also 4 oz. of isinglass, previously softened by steeping in water; put the two together in a double glue-pot with ½ lb. of brown sugar, and boil the mixture until it is quite thick; then pour into plates or moulds. When cold, cut and allow to dry, when the pieces are ready for use. They can be carried in the vest pocket. The cement is very useful for joining pieces of paper containing drawings, torn greenbacks, etc., as it immediately softens when applied to the tongue.—*Chem. and Druggist.*

[ORIGINAL TRANSLATION.]

## THE CHEMICAL NATURE OF PFTROLEUM OINTMENT.

(Concluded from page 25.)

### *Distillation of the solid and liquid Vaseline.*

After having shown that natural vaseline (that is, the residue left on distilling certain crude petroleums) consists of a solid and a liquid portion, and having also shown how these may be approximately separated from each other by fractional precipitation, the authors, Messrs. C. Engler and M. Boehm, pass on to the properties of these liquid and solid portions.

Both of these portions begin to boil at 240° to 245° C. (464°-473° F.), and at 340° C. (644° F.) yield a distillate which in the case of the liquid vaseline amounts to 75 per cent of the quantity taken for distillation, and in the case of the solid to 66⅔ per cent. The melting point of the residue from solid vaseline is 104° to 106° F., that of the distillate 97° to 99° F. The residue and the distillate from the liquid vaseline were *both* liquid, though the residue was quite viscid.

Even here it must be stated that the residue of the *solid* vaseline was entirely amorphous, while the distillate was strongly crystalline.

With regard to the constantly observed fact that solid vaseline was always converted by distillation from an amorphous into a crystalline condition, the authors made some experiments to determine, if possible, whether any change in chemical composition had taken place. For this purpose, a quantity of vaseline melting at 104° F. was distilled in vacuo, in the manner described above, to almost the last drop, whereby a distillate was obtained which congealed to a yellow wax-like crystalline mass, melting at 99° F. This was dissolved in petroleum ether, and treated with animal charcoal to decolorize it. Afterwards it was melted and analyzed, when it was found to have suffered noticeable increase of the hydrogen (from 14.17 per cent) and diminution of carbon (from 86.25 to 85.98 per cent).*

The authors then subjected American vaseline, melting at 32° and 33° C. (89.6° and 91.4° F.) to fractional precipitation, and obtained from it only 14 per cent of "solid vaseline" melting at 49°-50° C. (120.2°-122° F.); the remainder was liquid at ordinary temperature. An exact determination, however, of the proportions between the solid and liquid portions of American vaseline still requires to be made.

As the solid and liquid portions of any kind of vaseline have very nearly the same ultimate composition, and nearly the same boiling points, they cannot be separated, unchanged, by fractional distillation. The only way in which their separation can be effected is by fractional precipitation, as devised by the authors (see our February number, page 25).

Regarding the chemical nature of these solid and liquid hydrocarbons, it may be added that they are all saturated,† at least when prepared by the authors' method.

This is shown, for instance, by the fact that on the addition even of a single drop of bromine, to the liquid vaselines or to a solution of the solid ones in bisulphide of carbon, hydrobromic acid vapor is copiously given off, which would be impossible if any unsaturated compounds were present. Whether aromatic hydrocarbons are present or not, has not been determined by the authors.

From the fact that the solid hydrocarbons of vaseline are amorphous and are converted only after distillation into the crystalline form, the authors conclude that true crystalline paraffin is in general not contained in crude petroleum, and that the solid hydrocarbons observed to exist in the latter have much resemblance with the fossile wax (ozokerite), which is, indeed, regarded by many as a dried-up petroleum. Andreas Buchner, who first prepared this so-called paraffin (according to Fuchs) from the petroleum of the Tegernsee, named it, therefore, quite correctly *Berg-fett* ("mountain grease"). It is not intended to deny the existence of petroleums containing some paraffins as such; yet it seems as if it were present in them, mostly at least, in some transition form.

From the above it is evident that there is a considerable difference between *natural* and *artificial* vaselines; for, though both may be split into a solid and a liquid portion, yet these products are very much more different, chemically as well as physically, when obtained from the artificial than those of the natural vaseline. Hence, the former is much more prone to assume a granular condition, and may easily be separated by distillation into oil and ceresin. They even differ in viscidity, the artificial vaseline being much stiffer than the natural, even at the same temperature.

The want of homogeneity of the artificial, when compared with the natural vaseline betrays itself very prominently during the melting and recongelation of the former. Natural vaseline, when warmed, passes only very slowly from a transparent salve-like condition into a quite viscid, and gradually into a thin-fluid state. But, no matter how the degrees of viscidity appeared during melting, when the vaseline cools it becomes very gradually thicker and though still appearing to be liquid, it insensibly passes back into a transparent butter-like condition, without any sign of solid crystalline particles. The artificial vaseline, however, although passing likewise very gradually, when melted, from a dense into a soft condition, yet changes very suddenly from the last into a thin liquid. While natural vaseline, at 176° F., still possesses more than twice, at 122° F., more than three times, and at 113° F. almost five times the viscidity of water, the artificial vaseline is, at 212° F., almost as thin as water, and reaches already at 149° F., a condition in which it will refuse to flow from the aperture of the apparatus (viscidimeter). At the same time, distinct solid particles are seen to separate on cooling, so that the final mass is really a mechanical mixture of solid granules with liquid paraffin oil. In short, natural vaseline behaves, on melting, exactly like an animal fat (lard), while the artificial does not.

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* These are the outside figures of several given by the authors. The others show a much smaller difference. We think the latter too insignificant to base any conclusions upon them, inasmuch as the the discrepancies are within the usual errors of experiment.

† For the benefit of some of our readers, we append the following explanation:

A *saturated* hydrocarbon is one in which all the bonds of the carbon are completely saturated. For instance, marsh-gas or methane has the composition $CH_4$. All the 4 bonds of the single atom of carbon are, therefore, satisfied and thus "saturated."

Regarding the *acidity* of vaseline, there is to be distinguished between acids that may be derived from the refining process, and those which are formed or still forming through the action of air. As to the former, they are chiefly of the nature of sulphonic acids which are formed by the sulphuric acid combining with vaseline or its constituents, and a small amount of which may remain in the final product. Whether any particular vaseline has been manufactured or purified with the intervention of sulphuric acid or not, cannot be told from the product, unless this is actually shown to contain remnants of the acid. Of course, if the vaseline has been prepared by the method given by the authors, the presence of sulphuric acid or its products is excluded.

Concerning the acidification due to the oxygen of the air, we have the report of Prof. R. Fresenius. According to him, 1 gramme of American vaseline, when heated during 15 hours to 110° C., absorbed 5.22 cubic centimeters of oxygen, while German, so-called "Virginia vaseline," absorbed only 0.78 cubic centimeters. The former, after oxidation and solution in ether, showed a distinct acid reaction, the latter only a very faint one.

Since it does not appear from these results whether the "Virginia Vaseline" examined by Fresenius was, or was not, the officinal *Unguentum Paraffini* of the German pharmacopœia, which is prepared by mixing solid paraffin with paraffin oil, the authors of the paper decided to institute new experiments, which would at the same time reveal the *amount* of acid formed. In these experiments they introduced the modification, to add from time to time small quantities of water, with the expectation that this would hasten the absorption of oxygen. In each case, between 11 and 15 Gm. of vaseline were mixed with 2 to 3 C.c. of water and the quantity of oxygen below given (in the table), in tubes which were immediately sealed, and which were then heated during twenty-four hours to 110° to 115° C. At the end of this period, each tube was emptied under water, and the amount of absorbed oxygen estimated by the quantity of water taking the place of the absorbed gas. Next, the amount of acid in the water originally added, as well as in the vaseline, was estimated by means of alcoholic $\frac{1}{10}$ normal potassa solution (the vaseline having been dissolved for this purpose in ether). In each case, the largest quantity of acid was found in the vaseline and not in the water. For the purpose of comparison, two parallel experiments were made with lard, and in the case of artificial vaseline (Unguentum Paraffini) it was determined to find out which of its constituents was capable of absorbing the greater quantity of oxygen. The following table exhibits the results: The *natural vaseline* quoted is that of the Chesebrough Manufacturing Company of New York. The artificial was made by melting together one part of ceresin (Paraffinum solidum) and three parts of liquid vaseline of two different sorts. The lard employed was acid already before the experiment, but this amount of acid was deducted. The vaselines were free from acid before the experiment:

*Table showing the Amount of Acid produced in Vaseline and Lard by Oxidation.*

| | QUANTITY USED OF | | OXYGEN ABSORBED. | PERCENTAGE OF ACID EXPRESSED AS "POTASSA." | |
|---|---|---|---|---|---|
| | MATERIAL. | OXYGEN. | | | |
| Natural Vaseline, I. | 12.9 Gm | 59.5 C.c. | 34.9 C.c. | 5.5 *mg** | 0.043%† |
| " " II. | 11.6 | 71.5 | 46.5 | 9.1 | 0.078 |
| " " III. | 14.7 | 76.3 | 42.9 | 10.5 | 0.071 |
| Artificial Vaseline, I. | 15.5 | 74.0 | 4.5 | 0.7 | 0.005 |
| " " II. | 11.7 | 69.1 | 4.7 | 0.7 | 0.006 |
| " " III. | 14.8 | 74.7 | 4.2 | 1.4 | 0.009 |
| Lard.............I. | 14.5 | 71.2 | 49.8 | 31.1 | 0.214 |
| " ........... II. | 14.9 | 57.8 | 42.0 | 39.4 | 0.261 |
| Liquid Vaseline, I.. | 12.0 | 56.7 | 5.5 | ........ | ... .... |
| " " II.. | 11.0 | 56.9 | 4.1 | ........ | ........ |
| Ceresin............ | 11.4 | 52.7 | 8.0 | ....... | ........ |

* Milligrammes. † Percentage by weight.

According to these results, lard undoubtedly exhibits the greatest tendency to absorb oxygen, and still greater is the amount of acid thereby formed in the lard. For, while 42 to 46 cubic centimeters of absorbed oxygen produced only 9 to 10 milligrammes of acid (expressed as "potassa," in other words, calculated about equivalent to acetic acid), on the other hand, 49 C.c. of oxygen absorbed by the lard produced 31.1 milligrammes of acid. Much smaller is the capacity of acidification in the artificial paraffin. Among its components, the liquid portion appears to be a little more readily oxidized than the solid.

From a medical point of view, it would seem that the above results show the preference of the artificial over the natural vaseline. But the authors are candid enough to add that it would be unjust to condemn the use of the natural vaseline on account of its greater proneness to oxidation.

It should be remembered that both Prof. Fresenius' experiments and those of the authors of this paper were made under conditions which specially invited oxidation and acidification, and which never occur actually during the practical employment of vaseline.

The authors spread two samples of natural (Chesebrough) vaseline evenly upon plates of glass and exposed them to the air, near a stove, for 14 days. The same was done with artificial vaseline and lard. At the end of this period, the following quantities of acids were found (expressed as percentage of potassa).

| | |
|---|---|
| Natural Vaseline, I | 0.025 |
| " " II | 0.026 |
| Artificial Vaseline | 0.015 |
| Lard | 0.048 |

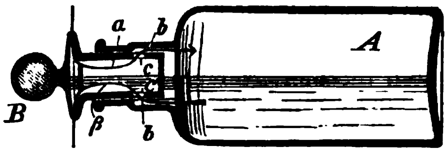
Hence, the rate of acidification, at a moderately warm temperature, is not much different in the two kinds of vaseline.

When atmospheric air was confined with specimens of the fats in closed tubes for two days, and heated to 40°–50° C., the amount of oxygen absorbed amounted to:

| | |
|---|---|
| Natural Vaseline | 2 C.c. |
| Artificial Vaseline | 1.5 C.c. |
| Lard | 2.3 C.c. |

Replacing the atmospheric air by oxygen under these circumstances did not produce a sensible difference.

In view of the conditions required of vaseline for medical or surgical purposes, it may therefore be said that the natural is at all events sufficiently resisting to changes, and that it appears preferable to the artificial mixture of the German Pharmacopœia on account of its greater physical and chemical homogeneousness, as well as on account of its better preserving its salve-like consistence at different temperatures, compared with the artificial which is apt to become granular and, when gently warmed, quite thin-fluid. Consequently, the claim made for the artificial vaseline, that it is much more indifferent towards certain strong chemical agents, such as concentrated sulphuric acid, is of but little importance. It is only where a notable acidification might become decidedly objectionable, particularly at higher temperatures, that the artificial vaseline might be preferable.—From *Dingler's Polyt. Journ.*



## DROP COUNTER.

H. LAMPRECHT has designed a new Tincture Bottle with Drop-Counter, in which the latter can be used for delivering drops either while still inserted in the neck, or by itself. In the neck of the bottle are two canals or grooves, *b*,*b*, which, when the stopper is turned in the proper direction, correspond with two small orifices, *c*,*c*, in the hollow stopper. Two other corresponding holes, for the admission of air, are provided for at *a*. The stopper, which is hollow (but closed at the bottom), has an expanded neck, with an orifice at two opposite points. When the bottle is inclined, the liquid finds its way along the lower groove, through the orifice *c*, into the stopper whence it may be dropped through the expanded neck. After the stopper has been partly filled with the liquid, a small portion will remain in it, when the bottle is set upright again, and the stopper may then be removed and used as a drop-counter by itself, as long as it contains any liquid.—*Germ. Pat.* 36587.

[The objections to this appliance are the obstacles to be overcome in its construction, which would render it expensive, and the difficulty with which the cavity of the stopper can be kept clean.—ED. AM. DRUG.]

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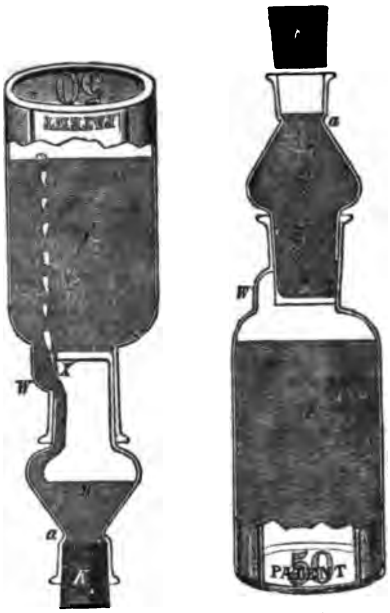
**The Difference** (so says a medical exchange) between a hill and a pill is that one is hard to get up, and the other hard to get down.

### A NEW MEASURING STOPPER.

Siebenmann, Vanoli & Co., of Unterneubrunn (Saxe-Meiningen, Germany), are the patentees of the measuring stoppers here illustrated.

The patent extends both to the stopper and to the bottle. The neck of the bottle has an expansion at *W*, which, when the stopper is turned so that the orifice or slot at *X* comes opposite to it, establishes communication between the bottle and the stopper. On holding the bottle downwards, after having turned the stopper in the manner indicated (see Fig. 1), the liquid in the bottle will flow into the stopper and fill it. All that is now necessary is to turn the stopper half way around so that it is in the position shown in Fig. 2, when the bottle may be placed on its bottom again. The stopper *K* is now removed and the dose poured out.

Fig 1. Fig. 2.

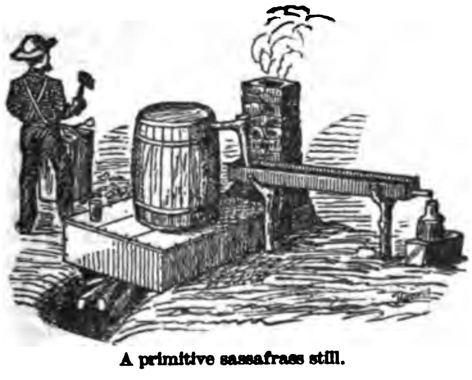


Siebenmann, Vanoli & Co.'s dose-measuring stopper.

These bottles are not intended for shop-bottles, though they can be used as such, but for holding liquids prescribed by physicians, different sized stoppers being furnished, according to the dose which is to be taken. The capacity of that shown in the cut (which is, of course, reduced in scale) is 15 grammes, or a tablespoonful. The manufacturers make bottles holding respectively 50, 100, 150, 200, 250 Gm. and stoppers holding 5, 10, and 15 Gm. The stoppers fit any of the above bottles.

### MAKING OIL OF SASSAFRAS.

In some of the interior counties of North Carolina may be seen, in operation, many primitive establishments for the manufacture of the oil of sassafras and oil of pennyroyal. The apparatus used in this work is so exceedingly rude and primitive as to appear ridiculous to most observers; but the product is of good quality, and constitutes a profitable industry. For these oils the usual style of "still" is shown in the sketch, which may be briefly described as a short trench in the ground, ending in a low flue or chimney. Over this trench is placed a closed wooden box, having a sheet-iron bottom, and an auger hole on top, through which water is poured. An ordinary barrel stands end-wise on top of the steam-box, and has several holes bored through its bottom, and also through the top of the steam-box, allowing steam to pass freely up through the barrel. A lute of clay is used to close the joint between the lower end of the barrel and the steam-box, as well as the cover of the barrel. Instead of a "worm," a tin pipe immersed in a trough of cold water is used; and a steam connection with the barrel is generally made by an elbow branch of wood, bored out with an auger. The sassafras tree (*Sassafras officinale*) grows abundantly in this section, especially on worn-out lands, where it is usually found in dense thickets of small shrubs. The root is dug and washed free of dirt, and, after being chopped short and bruised with a hatchets is ready for the "still." This work is done by boys employed by the manufacturer, who pays a stated price per hundred pounds for the root ready for use.



A primitive sassafras still.

The same outfit is used in the production of the oil of pennyroyal (*Hedeoma pulegioides*), which grows abundantly in the woods in many counties.

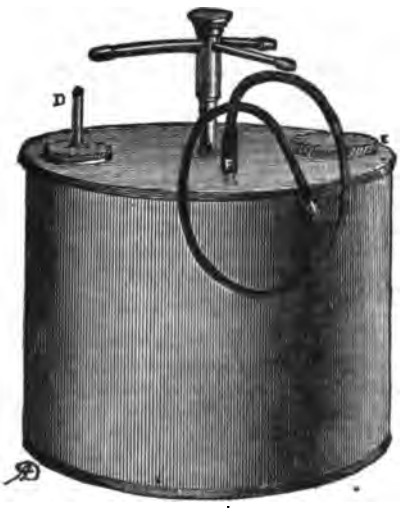
When the barrel is filled with the roots, and the cover made tight with clay, the process of distillation goes on rapidly. The steam passes through the mass of bruised roots, and is condensed by the tin tube into a mixture of distilled water and oil, and runs into a glass vessel set to receive it. Being of different densities, the oil and water rapidly settle into two strata, and one can be decanted from the other.

It is said that the operator of such a "still" can pay all running expenses and make a clear profit of $3 per day. When we consider that the cost of establishing such a "factory" is less than $10 for the entire establishment, and no chemical education is necessary on the part of the operator, the profit of the work is not to be despised.—Thomas C. Harris in *Pop. Sci. News.*

### A NEW BLAST AND BLOW-PIPE LAMP.

The lamp illustrated in the accompanying cut is a round box containing two reservoirs, one *D*, being filled (not quite full) with alcohol, and the other being only about one-half full of benzin—when very high temperatures are to be attained, with gasoline. The benzin reservoir, at *E*, is ordinarily closed with a screw-cap. But two tubes project from it, one in the centre, which bears three horizontal tubes each provided with a different-sized orifice, and another to which a rubber blow-tube with mouth-piece is attached. If the wick of the alcohol reservoir, *D*, is lighted, and air is then blown into the tube *F*, vapor of the benzin is forced through that horizontal arm of the central tube which points towards the alcohol flame, and a most intensely hot flame is produced.

According as a larger or smaller flame is needed, one of the three arms is rotated toward the alcohol-burner, which may be easily done, as both arms are disengaged when using the apparatus. The flame thus produced may be used for various purposes in the arts, and also in the laboratory. The apparatus will be particularly useful where the common street gas is not available.—*Neueste Erfind. und Erfahr.*, 1886, 400.



Blast and blow-pipe lamp.

**Quince Cider.**—A very pleasant beverage can be produced as follows: Take a quantity of ripe quinces, cut into quarters, and with the pips, etc., removed. Boil these in a copper with double their weight of water; when boiled to perfect softness, pour the must into a vat. To this add, for every fifty pints of must, two pounds of sugar and half a pound of yeast, diluted in a sufficiency of hot water. Mix the whole well together, and allow to ferment. Then strain and bottle.—*Chem. and Drugg.*

**Preparation of Pure Methylic Alcohol from Crude Wood-Spirit.**—A recent patent granted to R. Piper and M. Rotten describes the following process:

Distil the wood-spirit first with lime, and purify it in a columnar still until it contains not more than two per-cent of acetone. To remove the latter, heat the distillate to boiling in a vessel provided with a return-condenser, and conduct a current of dry chlorine through it. Take out a sample from time to time, distil off the alcohol from the chloracetone, and examine the distillate for acetone, by addition of potassa and iodine, whereby iodoform will be produced if alcohol or acetone are present. When the latter is no longer to be detected, interrupt the current of chlorine gas. Next separate the methylic alcohol from the chlorine-substitution products and rectify it over lime to remove the last traces of chlorine.

[Original Translation.]

## THE RELATIVE MERITS OF THE PRINCIPAL URINARY TESTS.*

(Continued from page 27.)

### III.—Reaction for Albuminoids.

1. *Hemialbuminose* (*Propeptone*).

Though the recognition of this albuminoid body has so far not become of practical importance, yet it may be useful to know the phenomena which its presence produces during the several tests for albumin.

For instance, if the urine is tested for albumin by adding to it one-fifth of its volume of nitric acid, and then boiling, and if no precipitate appears until more nitric acid has been added after cooling, which precipitate redissolves every time the urine is heated, this is caused by hemialbuminose.

*Note.*—The biuret-reaction for peptone (red color produced by potassa and sulphate of copper), if applied to the urine direct, is not sufficiently certain and sharp; nor is it of any importance for practical diagnosis. Hence it is passed over here.

2. *Mucin.* If urine is tested for albumin with acetic acid and ferrocyanide of potassium (see the preceding number of this Journal, page 26, No. 5), a turbidity is occasionally obtained already after the addition of acetic acid. This may be caused either by the separation of urates (in urine containing excess of uric acid), or of mucin. In such cases it is advisable to use a second test, besides that above mentioned. Add to the urine, already rendered turbid by acetic acid, some nitric acid. If the turbidity disappears, it was caused by mucin; but if it remains or becomes more intense, it may be due to urates or to albumin. On heating, the former dissolve, but the latter does not.

### IV.—Reactions for Blood.

1. *Heller's Hæmoglobin Test.*

Render the urine strongly alkaline with potassa, and heat to boiling. The resulting precipitate of phosphates will be found colored red if blood-pigment present.

*Criticism.*—This test permits the recognition of the coloring matter of blood, not only in hæmaturia, but also in hæmoglobinuria, with great certainty. Neither normal nor icteric urine gives this reaction, even when loaded with urinary coloring matters. It is only after the use of rhubarb, senna, etc., that the urine may give a similar reaction. In sharpness, the test is but little inferior to that of the spectroscope, which latter is rather foreign to the practitioner. Of course, for distinguishing between hæmaturia and hæmoglobinuria, the microscope cannot be dispensed with; nor the spectroscope for recognizing very small quantities.

2. *Almén's Reaction.*

Make an emulsion of equal parts of tincture of guaiac and oil of turpentine. Allow a portion of this to flow cautiously upon the urine. A blue ring at the line of contact indicates blood coloring matter.

*Criticism.*—This test is very handsome and sharp, but is not necessary, as the preceding one is all-sufficient.

### IV.—Reactions for Bile.

*General Remarks.* Urine which is rich in biliary pigments, and coming from plainly icteric patients, is recognizable without difficulty, or without requiring special tests, from its peculiar dark-yellow to beer-brown color, and the yellow tint of the foam. Such urine gives the bile reactions with great distinctness. In such cases, however, in which the diagnosis of jaundice is doubtful, even the chemical reaction sometimes fails to respond. For this reason, the different bile-tests do not possess such an importance in practice as the albumin and sugar tests. Nevertheless, the most reliable methods will be enumerated here.

1. *Gmelin's Test.*

Into a small test-tube pour a few cubic centimeters of nitric acid, to which a drop of fuming nitric acid (that is, such as contains nitrous acid) has been added. [The kind of acid required may easily be obtained by heating a little nitric acid with a small piece of sugar or starch.] A few C.c. of the urine to be tested are then taken up by a pipette and cautiously transferred to the surface of the acid, by allowing it to flow, drop by drop, along the side of the test-tube. The two liquids must remain entirely separate. At the line of contact, there will appear a colored ring which is green above, and blue, violet, and red below. Often only a green and brownish-red ring is noticed.

*Criticism.*—If the colored rings are very distinct and bright, the presence of biliary pigments is proven. If they are imperfect, this may be due to the presence of indican. The test is neither absolutely certain nor very sharp. If only small amounts of biliary pigments are present, the test often fails altogether.

2. *Rosenbach's Modification of Gmelin's Test.*

Filter a rather large volume of the urine to be tested, and lastly, pour upon the inner surface of the filter some nitric acid containing nitrous (see under No. 1). The colors mentioned in the preceeding test will make their appearance.

*Criticism.*—The author considers this modification of Gmelin's test to be more sharp that the original. Biliary urine, diluted with 19 parts of water, failed to give the original Gmelin's reaction, but responded to Rosenbach's improved test, by giving a distinctly blue and red ring. The test is also very convenient.

3. *The Chloroform Test.*

If icteric urine is acidulated with a little acetic acid, and then shaken with chloroform, the latter assumes a yellow color. If the urine is separated, Gmelin's test may be applied to the chloroform. On addition of a trace of aqueous solution of iodide of potassium, it assumes a green color. The same happens on adding a drop of dilute solution of ferric chloride, according to Penzoldt.

*Criticism.*—If much biliary pigment is present, this test furnishes a very fine reaction. It is, however, not very sharp. Urine containing considerable bile, after being diluted with four volumes of normal urine, still caused the chloroform to assume a yellow tint, but failed to give any further distinct reaction. A slight yellow tint is imparted to chloroform sometimes also by non-icteric urine. The execution of the test is also sometimes interfered with by the reluctance of the chloroform to separate from the aqueous liquid.

4. *The Test with Sulphuric and Nitrous Acids* (*Masset's Test*).

To about 2 C.c. of urine add 2 or 3 drops of concentrated sulphuric acid, and a crystal of nitrite of potassium (better, nitrite of sodium, according to Penzoldt). If biliary pigments are present, a fine deep-green color is produced.

*Criticism.*—If an abundance of pigments are present, the reaction appears very distinctly. In presence of small quantities, however, it is rather indistinct.

5. *The Test with Acetic Acid after Filtration* (*Penzoldt's Test*).

The author (Dr. Penzoldt), here mentions a test which he has discovered accidentally. It is based upon Rosenbach's method of absorbing the biliary pigments by filtration, and then applying acetic acid.

Filter the urine through an ordinary filter of moderate size. In the case of urine containing only a small amount of bile-pigments, it is advisable to pass a considerable volume of the urine through a *double* filter. The latter is then allowed to dry and a few cubic centimeters of acetic acid are then applied to it in such a manner that every portion of it is acidulated. The drainings are best caught in a vessel of wide diameter, so as to obtain a very shallow layer of liquid. At first, the acetic acid is yellowish-green (quite distinct from the color of the urine), and, after standing some time, it becomes green and even bluish-green. A gentle warming of a portion of the liquid hastens the reaction. On drying, the filter shows a green edge.

*Criticism.*—The author states that this test has yielded so far very satisfactory results. Strongly icteric urines, even when diluted with 19 volumes of neutral urine, and which gave either only indistinct or altogether negative reactions with other tests, still responded to this test quite distinctly. Normal urine does not give the reaction. It seems therefore, unless the contrary is proven hereafter, that this test deserves recognition on account of its sharpness and convenience.

6. There are several other tests which are very sharp (for instanee, that of Huppert), but as they are too circumstantial to be used by the practitioner or for clinical purposes, they are here omitted.

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**Russian Phosphorus.**—Since 1871, when the manufacture of phosphorus was first undertaken in Russia (on the Danilicha River in the government of Perm), the product of this factory has increased from 347 puds (111½ cwt.) to 4,300 puds in 1884. Russian phosphorus has displaced the English product, and now supplies two-thirds of Russian requirements. Another factory at Irbit, started in 1877, now produces from 480 to 6,140 cwt. annually. The method of manufacture differs only from that in vogue elsewhere in the moulding of the product. The moulds are 2 inches high, 22 inches long, and 12 inches wide. At the bottom of the container are 240 cavities, ½ inch deep by 1 square inch surface. Water is poured in the container, and to this is added phosphorus purified with a mixture of chromate, about 5 lbs. being required to fill all the cavities. By using these moulds the Russian workman is enabled to turn out from 10 to 12 puds (360 to 432 lbs.) phosphorus per diem, while by the English method only 2½ to 3 puds (90 to 180 lbs.) can be moulded in a day of twelve hours. The phosphorus, after moulding, is packed in tins containing 10 lbs. each.—*Chem. and Drug.* from *Chem. Zeit.*

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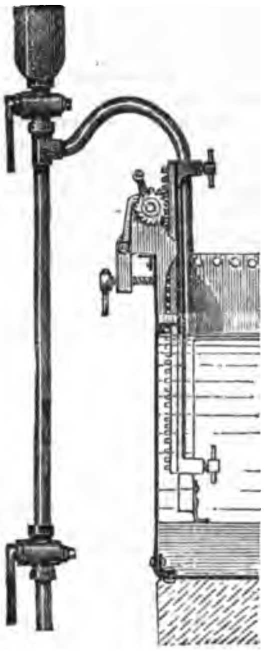
* Abstract from the pamphlet of Dr. F. Penzoldt, "Aeltere und neuere Harnproben und ihr praktischer Werth." 8vo, Jena, 1886.

### A PRACTICAL SIPHON.

While the siphon here illustrated does not involve a new principle, yet it is so simple and serviceable, and so easily constructed, that it ought to find many users. The inside or shorter leg, contained within the vessel from which liquid is to be drawn, is held by set-screws at any desired level. The upper stop-cock having been opened and the lower one closed, enough of the liquid is poured into the cup to fill the accessible part of the siphon. On now closing the upper and opening the lower stop-cock, the liquid will continue to flow until the siphon "sucks." Of course, the material of which the siphon is constructed must be such that it will not be attacked by the liquid. This form of siphon is made (in various kinds of metal, etc.) by E. E. Rost & Co., of Dresden.—After *Der Seifenfabrikant.*



Rost & Co.'s siphon.

### An Unexplained Explosion.

Mr. Edwin Johanson, Pharm. Mag., editor of the *Pharmaceutische Zeitung für Russland*, reports the details of a very remarkable explosion which happened during an analytical operation, and which requires explanation.

He had received the stomach of a man suspected to have died of poison. The contents were bright green, and deposited an intensely green precipitate, which led to the suspicion that Schweinfurt green had been used, and this suspicion was confirmed by the fact that both copper and arsenic were found to be present in large quantity, as shown by the qualitative reactions of a small sample.

A portion of the mass (360 Gm.) was now treated in the usual manner with chlorate of potassium and hydrochloric acid, to destroy organic matter. All free chlorine having finally been driven out, the filtered liquid was treated with hydrosulphuric acid, the precipitated sulphide of arsenic and sulphate of copper collected on a filter, washed with dilute solution of hydrosulphuric acid, and then treated on the filter with sulphide of sodium. The filtrate, which contained all the sulphide of arsenic, was evaporated to a small volume, mixed with carbonate and nitrate of sodium, and evaporated to dryness.

This evaporating and drying was performed in a perfectly clean open platinum capsule of 143 Gm. weight, and 11.5 Cm. (4½ inches) upper diameter, in which the same operation, as well as the ignition, had been performed for years.

In the present case, instead of a quiet oxidation and harmless deflagration, there occurred an explosion with very loud detonation in the very beginning of heating. The thick platinum capsule had been shattered in a downward direction with great force, the bottom being torn in a most remarkable manner, and the upper portion being driven into the iron triangle upon which it rested. The quantity of sulphide of arsenic that was present appears to have been 1.749 Gm., the amount of carbonate of sodium added about 7 Gm., and of nitrate of sodium 15 Gm. During the destruction of the organic substance, there are formed certain organic compounds which are precipitated by hydrosulphuric acid. These precipitates are organic sulphur and chlorine compounds, and are soluble in ammonia, as well as in sulphide of ammonium or sodium. They are formed in particular abundance from carbohydrates.

What the special cause of the explosion was in the above described experiment has not been ascertained. Mr. Johanson suspects that the *proportions* of the several ingredients had something to do with it.

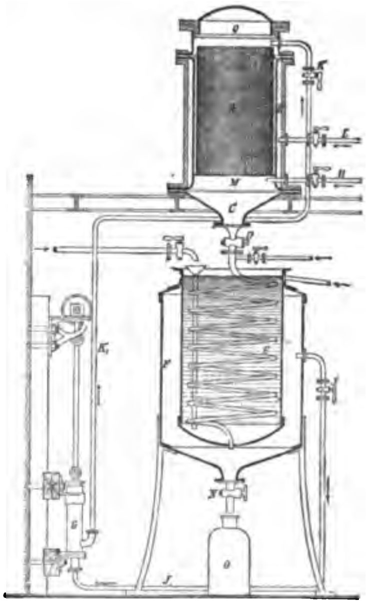
### A NEW STILL FOR ESSENTIAL OILS, ETC.

Breithaupt has patented the apparatus here described, for the purpose of distilling, or rather displacing such essential oils as are contained, within the respective plants, in oil-cells, which can be ruptured by heat. The process involves the application of steam, not for the purpose of distillation, but for rupturing the oil-cells and setting free the oil, which is then displaced by a pressure of air.

Of course, this method of obtaining oils is not applicable in all cases, since many essential oils cannot be displaced in this manner. But it is claimed for it, that, wherever it is applicable, it extracts the oil much more thoroughly, and with less injury to its fine flavor. Originally, the apparatus was devised for the purpose of extracting the essential oil from *hops*. As the oil, while being pressed downward through the material by the pressure of air, naturally will carry along with it other constituents, particularly resinous particles, it will be evident that the products obtained by this process must be rectified in order to be freed from foreign substance. Yet this has to be done in most cases even when regular steam distillation was used as the first step of the process.

The apparatus consists of a macerator *A*, *B*, a condenser *E*, *F*, and a receiver *O*. The herb or other material to be extracted is packed tightly into a sieve-basket *A*, which is placed in the macerator, after which the latter is hermetically closed with the cover *Q*. Stop-cocks *D*, *N*, and *K* being closed, steam is admitted to the macerator by the stop-cocks *L* and *H*. The steam entering through *L* only surrounds the inner vessel *B*, which contains the basket, but cannot enter the latter. This supply of steam is kept up throughout the operation. The other jet of steam, entering through *H*, penetrates the material, disintegrates the oil-cells and liberates the oil. After about ten minutes this is shut off. Next the air contained in the body of the condenser *F* is exhausted by opening the stop-cock *J* and setting the air-pump going. A sufficient vacuum having been produced, compressed air, furnished by the same air-pump, is admitted on top of the material in *A*, and the faucet *D* having been opened, the displaced oil, etc., passes into the condenser and collects over the closed stop-cock *N*. The whole operation is repeated four or five times, as may be required, and in the intervals, when the condenser *F* is shut off from the macerator, the obtained oil is drawn off into the receiver *O*. The whole process is said to occupy only a short time, in favorable cases only about one-half hour. (Germ. Patent, Supplement, No. 36,885, March 4, 1886.)

If this method is found practicable, it will evidently be advisable to place a series of macerators side by side, so that while one is being treated, the others may be emptied and charged without having to interrupt the operation.



Breithaupt's essential oil still.

**Drugs and Chemicals in Japan.**—The *Chemiker Zeitung* says that 55 to 60% of the drugs and chemicals used in Japan in 1883–4 were imported from Great Britain. During 1885 the proportion fell to 40%, and importations from Germany were increased by 25 to 30%. The following hints are given respecting technical chemicals: Thirty-two per cent chloride of lime is the only variety used in Japan; it should be packed in tin-lined cases; caustic soda of 60 to 62 per cent, in cases of 450 lbs.; soda ash of 48 to 52 per cent, in casks of 250 lbs.; red chromate of potash in 1 cwt. casks; bicarbonate of soda in 1 cwt. casks, and carbonate of soda in 350 lb. casks are generally used. Chlorate of potash is very extensively employed in the manufacture of matches, an industry which is making considerable progress.

### Antiseptic Appliances.

At the recent meeting of the Medical Society of the State of New York, Dr. A. Gerster exhibited a set of appliances which will enable physicians to meet any emergency requiring the use of antiseptic dressings without delay. The entire collection of materials is of so simple a character, and its preparation is so thoroughly allied to the business of the pharmacist, that we reproduce his list of articles, believing that it would be profitable for pharmacists in towns of some size to undertake their manufacture and sale.

1 Leather bag, 8½x18 inches, having loops inside for holding bottles and other articles; an inside pocket for small articles and an outside pocket for dressings. (The bag is placed in the nest of large basins and fastened to them by means of two leather straps and buckles.)

1 Bottle, 2 oz., in wood box, with corrosive sublimate. Box marked:

"Corrosive sublimate........................ 1.
Alcohol....................................10.
1 teaspoonful to a quart of water; strength, 1:1,500."

1 Bottle, 4 oz., in wood box, carbolic acid, pure. Marked: "4 teaspoonfuls to a quart of hot water; shake well; strength, 3 per cent."

1 Bottle, 2 oz., in corrugated metal box, chloroform.

1 Bottle, 4 oz., for catgut ligature, in corrugated metal box, with glass reels.

1 Dusting Box, hard rubber (Gerster's) for iodoform.

1 Tin Can, with ½ lb. of ether.

1 Long Glass Jar, with rubber cork and metal screw top, for rubber drainage tubing, with 5 parts carbolic solution to 100 parts water.

1 Long Glass Jar, like above, for compressed carbolized sponges.

1 Large Broad Handle Scissors, stout, for cutting gauze.

1 Stout Ring Handle Dressing Forceps, for drawing forward tongue in anæsthesia.

1 Razor. 1 Teaspoon. 1 Piece of wax.

1 Ormsby's ether inhaler and 1 Esmarch's chloroform mask, both inclosed in rubber-cloth bag.

1 Large Size Fountain Syringe, with 3 glass points and rubber tubing; also in rubber-cloth bag.

1 Hypodermic Syringe, in metal case, with screw cap to prevent evaporation, for probatory puncture.

1 Stiff Nail Brush, solid wood back.

1 Dozen large and small Safety Pins.

1 White Linen Pouch, for the reception of instruments.

1 Nest 6 Tin Basins, block tin, 6 in. diameter.

1 Nest 6 large oblong Tin Basins.

The boxes holding the bottles of corrosive sublimate and carbolic acid are of box-wood with screw tops, such as are commonly met with in drug stores. The corrugated metal boxes are likewise to be had in nearly every pharmacy. The dusting box for iodoform might be replaced by an ordinary glass pepper-box with a rubber cap or a cap of wash-leather and rubber band, for security. The long glass jars are such as contain the preserved fruits brought from Wiesbaden and are to be had of dealers in fine groceries. The ether-inhaler, chloroform-mask, and dressing forceps would be obtainable from dealers in surgical instruments, and the tins from a dealer in house-furnishing ware.

The catgut for sutures can be bought in quantity and carbolized by the pharmacist. The sponges can likewise be cleaned and carbolized, and both can be sold at a good profit. The rubber for drainage tubes is already kept in stock in most stores, and needs only to be cut to the length which will fit the jar, and properly cleaned.

### Preserving Distilled Water.

Mr. J. N. Hurty, of Indianapolis, gives the following directions for preparing and keeping distilled water, so as to avoid the ropy sediment which is liable to form under ordinary circumstances:

Say the still is of five gallons' capacity, not more than four should ever be distilled therein; take then four gallons and a quart of good clear well water; boil violently in a bright tin vessel for ten minutes—this drives off almost the last trace of ammonia; then introduce into the perfectly clean still; start the process; reject the first half gallon, and save the succeeding two and one-half gallons.

This is to be stored as follows: Prepare an empty carboy by boring with a rat-tail file a hole in the shoulder; through this hole introduce a glass siphon, made air-tight at the point of contact with the carboy by slipping over the siphon tube a piece of rubber tubing, and on the longer arm of the siphon place another piece of rubber tubing about four inches long, provided with a pinchcock. Into the mouth of the carboy fit a perforated cork, holding a glass tube filled with cotton; this is to be inserted as a stopper, the tube filled with cotton acting as a vent. All the air entering the carboy will be drawn through the cotton, thus being filtered perfectly free from motes. It is these motes, or dust particles, among which the seeds of the confervæ exist that cause the ropiness which we wish to avoid.

The distilled water in dropping from the mouth of the condenser into the receiver, as a rule, becomes contaminated with air motes, and unless these be removed before the water is finally deposited in the carboy, confervoid growths will appear.

To accomplish this, the distilled water must be brought to a boil in a bright tin vessel, the warm carboy thoroughly rinsed with it, and when at last the container is full insert the perforated stopper carrying the tube filled with cotton; start the siphon, and now if the stopper is not removed the entire contents may be used, as required, and not a single fleck will form therein.—*Western Druggist.*

### Tooth Powders.

If a dentifrice consists too largely of fine and light dry powder, such as precipitated chalk, it is inconvenient and wasteful in use. Some is blown out and about every time the box containing it is opened or shut; and when the brush is charged and dipped into water to moisten the powder, much of it leaves the brush and remains in the water; or if instead the dry powder be conveyed direct to the mouth, it is choking and very unpleasant. This not unimportant property is somewhat modified by a large proportion of soap, but more perfectly controlled by a small quantity of fibrous material, such as orris root, which is by no means only useful for its aroma and flavor. About 10 per cent is sufficient, but as the delicate violet odor and not unpleasant bitterness of orris is a good disguise for soap, it may be harmlessly added up to 20 per cent or more.

A very easily made, smooth, and agreeable powder may consist of soap, chalk and orris in equal weights; but a better formula is

| | Parts |
|---|---|
| Fine dry neutral hard soap........................ | 3 |
| Precipitated chalk.......................... | 4 |
| Fine dry orris root........................ | 1 |

Made with a good sample of soap, such a powder is almost tasteless, and even without extra flavoring not unpleasant. Scenting is often overdone. It is quite doubtful if the usual "antiseptics" in the small quantity tolerable in a dentrifice add anything to the germicide power of soap. When possible, individual taste should be consulted in prescribing flavors, as even the most popular ones are objectionable to certain idiosyncrasies. For instance, the generally appreciated and much-used wintergreen is extremely obnoxious to some people. Perhaps the most universally approved and safest is otto of rose, but the real, and not the geranium oil (which is bitter), must be used; and though only three drops to the ounce of powder should be required, it is nevertheless unfortunately expensive.

When a slightly rougher powder is demanded, some of the chalk may be replaced by fine cuttle-fish bone. The following simple prescription, safe and effective, may be entrusted to any dispenser:—

| | |
|---|---|
| Pulv. saponis albi .......................... | ʒ iij. |
| Cretæ præcip .............................. | ʒ iij. |
| Pulv. ossis sepiæ.......................... | ʒ i. |
| Pulv. rad. iridis........................ | ʒ i. |
| Olei rosæ.............................. | gtt. iij. |

Misce.

—*Jour. Brit. Dent. Assoc.*

### Quinine Pills.

In the December number of the *Pharmaceutishe Zeitschrift für Russland*, Mr. Theodor Waage gives a method of preparing quinine pills which is well deserving of notice. Quinine hydrochlorate is mixed with hydrochloric acid in the proportion of about six drops to five grammes of the salt. The acid is to be added very cautiously drop by drop, and incorporated with the quinine salt. One drop too much would make the pill mass smeary, but when properly prepared, it admits of being worked very easily. The advantages of the pills made in this way are, that, in the first place, they are so small that they can be swallowed with ease, even when containing as much as 0.25 gramme, nearly four grains of quinine salt, being only one-half the size of pills made with mucilage. Moreover, the pills have an elegant brilliant white appearance that renders them agreeable to the patient. They soon become hard without losing their ready solubility, and as they do not become soft to exposure by moist air, they are very suitable for the supply of travellers in tropical countries.

◆

**Keeping Labels.**—A correspondent says: This is my plan: I had a drawer made measuring 2 feet 6 inches wide, by 21 inches long, and 2¼ inches deep, outside dimensions, and divided into small compartments of 3½ inches long and 1½ inches wide, with a small elastic band round two packets of labels. I may add, the depth of each compartment is two inches. It is fixed in centre of counter and is very handy. The reason I put two packets of labels in the band is that it holds them firmer.—*Chem. and Drug.*, Nov. 13th, 1886.

### IMPROVED CONDENSER.

Walter some time ago introduced a new form of condenser, in which the volatile vapor of a distilled liquid does not pass through a central tube kept cold by water circulating outside, but the water is made to circulate in the inner tube, and the vapors are made to pass on the outside of this. The inventor has recently introduced an improvement which makes these condensers act with still greater perfection.

In Fig. 1 is represented a flask with long neck, into which is inserted a tube, closed at the bottom, and, into which a whole series of bulbs have been blown. The diameter at the bulbs is such that they closely approach (but is somewhat less than) the inner calibre of the neck of the flask. Into this bulb-tube descends a narrow straight glass-tube through which a current of water is conveyed into the condenser, which water finds its exit at *d*, where it is carried off by suitable rubber connections.

When a liquid is to be heated in the flask so as to prevent evaporation, which is ordinarily accomplished by connecting the flask with an upright condenser, it is only necessary to insert the bulb-tube condenser of water into the neck, the current of water having previously been already started. This arrangement has the additional advantage that no cork or other fittings are required for making any connections. All that is needed is to introduce the condenser into the neck and to let it hang there. When it is no longer wanted, it can be taken out (and, if necessary, replaced again) at an instant's notice.

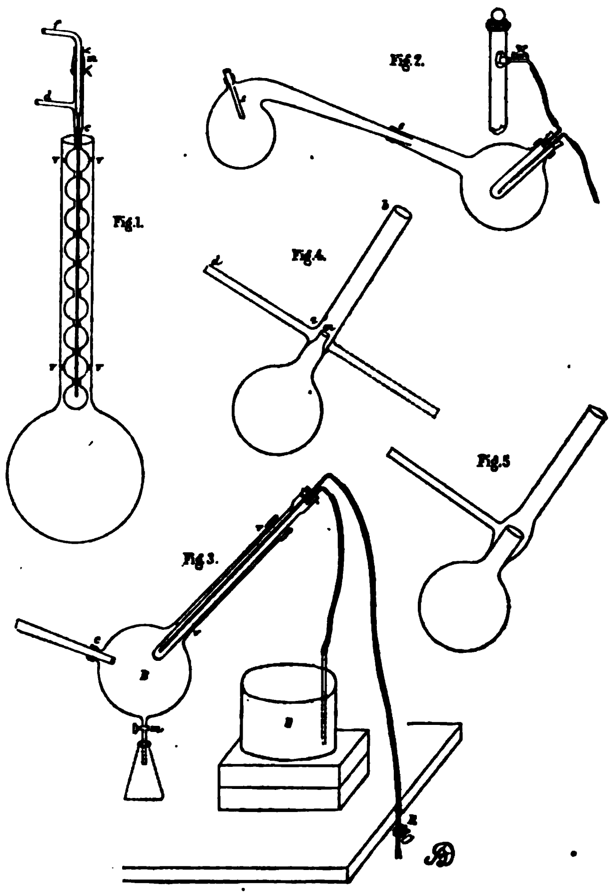
The most suitable proportions in size, for an apparatus of small dimensions, are as follows, say for a flask having a diameter (of body) of 9 Cm. (3½ inches), with a neck of 2 Cm. (¾ inch) in diameter, and 18 Cm. (7 inches long):

Size of main-tube of condenser 5 Mm. (⅕ inch.); diameter of bulbs 16 Mm. (⅝ inch.); inner tube about 2 Mm.

In order to prevent actual contact between the hot neck of the flask with the cold bulbs of the condenser, and to keep the latter in a fixed condition, three pellets of glass are fused upon one of the bulbs at *v*, both above and below.

It might be supposed, at first sight, that such a condenser is not sufficiently effective. Perhaps the calibre of the inner glass-tube may appear altogether too small. But, on trial, it will be found to be perfectly sufficient. Supposing ether is heated to a rather brisk boil in one of these flasks, so that a continuous thread of condensed liquid runs off from the lowermost bulb, it will be found—if an eight-bulb tube is used—that the ether vapor is completely condensed already at the fifth bulb.

A very ingenious method of using these condensers is shown in Figs. 2 and 3. When liquids are to be distilled which attack cork or rubber, and where it is desirable that the vapor shall come in contact only with glass, an arrangement like that in Fig. 2 may be used.



Walter's condensers.

The retort at the left bears in its tubulure a glass-tube ground so as to fit the neck. This tube serves to receive a thermometer, and to facilitate the transmission of temperature, a little mercury is poured in. At *c*, the retort is connected by a ground joint with the globular receiver. This carries in its neck one of Walter's condensers, the supply of cold water being afforded by the attachment to the water-service, as shown in the cut. The volatilized vapors of the liquid, made to boil in the retort, pass over into the receiver, where they are condensed by contact with the cold condenser. [There being no way by which an excess of generated vapor can be prevented from bursting the retort or receiver, we think the arrangement in Fig. 3 preferable.]

In Fig. 3, the retort enters the receiver through the tubulure *c*, and the receiver itself has a very long neck into which one of Walter's condensers is inserted without being fitted tightly into the neck. In the cut, the condenser is represented as a straight tube, while in fact it is recommended to be of the bulb-shape described above, the straight tube being chosen merely to facilitate the sketching of the apparatus. At the bottom of the condenser is an outlet provided with stop-cock. Any vapors carried over into the condenser will become very thoroughly condensed in the long neck, and collect in the bottom of the condenser, where they may be drawn off from time to time. This form of apparatus, therefore, may be used for collecting different fractions of a distillate separately.

In order to arrange a flask so that the distillate may either run back into the flask or be collected outside, a flask of the shape shown in Fig. 5 may be used. This is placed over the water-bath, or other source of heat, in the oblique position shown in the figure, so that the lateral tube points obliquely upwards. This tube is closed with a suitable stopper, and a Walter's condenser is inserted into the long neck. The first portion of the condensed liquid will collect in the pocket formed by the inner neck and the surrounding tube, but as soon as this pocket is filled, the liquid will run back into the flask. When the operation has lasted long enough, and it is desired to distil off all the volatile liquid, it is merely necessary to turn the flask through an arc of 180°, without altering its inclination. The lateral arm formerly pointing obliquely upwards, will now point obliquely downwards, as shown by the dotted lines in Fig. 4, and the distillate may be received in a vessel placed below.

Walter, however, states himself that these forms of apparatus are not much suitable for distilling off liquids of low boiling points, because the ascending vapors rapidly heat the descending condensed liquid, and a good deal is lost. Better results are obtained with higher boiling liquids, and the best with those which easily solidify. Thus the flask shown in Fig. 4 is extremely serviceable in preparing acetanilide (the *antifebrin* of modern therapeutics), particularly as no thermometer is required for the subsequent distillation, the proper fraction to be collected being recognizable through the fact that it solidifies quickly to a hard mass.

Flasks of small size of this construction may have a diameter (of body) of 9 Cm. (3½ inch.); length of neck, from *a* to *b*, 15 Cm. (6 inch.); diameter of neck, 2 Cm. (¾ inch.); diameter of orifice at *m*, 1 Cm. (⅜ inch.); length of lateral tube, *a* to *d*, 15 Cm. (6 inch.); diameter of do., 5 Mm. The condenser suitable for this is of the size described above.

In many cases, it is not necessary to use any cooling liquid at all, but a simple current of cold air may be aspirated through the condenser by means of the filter pump.*—After *Journ. f. prakt. Chem.*, 1886, 427.

### Suspended Crystallization.

In a paper on the above topic read by Prof. J. M. Thomson before the Royal Institution of Great Britain, the author cited a number of experiments, illustrating the influence of unfiltered air in starting crystallization in supersaturated saline solutions, from which we quote the following:

Glauber's salt (sulphate of soda) affords a very good example of this. If the crystallized sulphate be added to boiling water in a flask, as long as it is dissolved the water will take up nearly twice it weight of salt. If this solution be now allowed to cool in an open vessel, an abundant deposition of crystals will take place, as the water when cold will only dissolve about one-third of its weight of crystallized sulphate. But if the flask be tightly corked or stoppered with cotton wool whilst the solution is boiling, it may be kept for several days without crystallizing, although moved about from place to place. On withdrawing the plug, however, the air on entering the flask will produce a slight disturbance of the surface of the fluid, and from that point beautiful prismatic crystals shoot through the solution until the whole has become perfectly solid.

It is not necessary in preparing such solutions that the flask be closed completely with a stopper, as we find that plugging the neck with cotton wool exercises the same effect in preserving the solution, and that the air which enters the flask during the cooling becomes thoroughly deprived of its crystallizing influence, evidently undergoing a filtering process. A very good instance of the inability of filtered air to start crystallization is afforded by a solution of alum saturated at 194° F., and allowed to cool in a flask stoppered with cotton wool in the manner previously described. On withdrawing the plug of cotton wool, the crystallization, which in this case takes a much longer time to commence than with the sulphate of soda, will be seen beginning at various points on the surface of the liquid, and will spread slowly from these, octahedral crystals of alum half an inch or more in length being built up in a few seconds.—*Pharm. Journ. and Trans.*

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* These forms of apparatus are made by F. A. Kühnlenz, of Frauenwald, near Schmiedefeld, in Thüringen, Germany. They may be obtained through dealers in chemical apparatus. (See advertisements.)

### Relationship between Hydrastine and Narcotine.

M. Freund and W. Will have obtained very interesting and important results during a study of the chemical nature of hydrastine from Hydrastis canadensis.

Perrins discovered hydrastine (which occurs alongside of berberine) in the mother-liquid left after the separation of berberine by means of dilute acids. The mother-liquid is cautiously neutralized with ammonia, until a permanent precipitate of a dark-colored resin forms which does not redissolve on stirring. The liquid is then filtered, and ammonia added to the filtrate, when a yellowish-brown precipitate separates which is several times recrystallized from alcohol, and then constitutes hydrastine, forming colorless, shining prisms.

Shortly afterwards the base was examined by Mahla, who assigned to it the formula $C_{22}H_{23}NO_6$.

Freund and Will have met with difficulties in the preparation of hydrastine. The above-mentioned yellowish-brown precipitate is produced in copious quantity, but it is difficult to recrystallize. Nor could the authors obtain a yield of 1½ per cent from the root, as stated by Perrins. For this reason, they preferred to extract the finely powdered root with ether. The residue left on evaporation of the latter is dissolved in hot alcohol, and the filtrate allowed to cool, when crystals of nearly pure hydrastine separate. The base is remarkable on account of the ease with which it crystallizes. It forms crystals belonging to the rhombic system, melts near 132° C. (269.6° F.), and is lævogyre in chloroformic solution, but dextrogyre in aqueous solution made with the aid of hydrochloric acid.

When hydrastine is oxidized either with permanganate of potassium or with nitric acid, it is partly converted into *opianic acid*, identified by ultimate composition, melting-point, and all other properties. The oxidation by permanganate is made as follows:

Five Gm. of hydrastine are dissolved in an excess of hydrochloric acid, the solution diluted to about 2 liters, and gradually mixed with a cold solution of 10 Gm. of permanganate of potasssium in 2 liters of water. The mixture is then rendered faintly alkaline with sodium carbonate, filtered, and strongly concentrated. On supersaturating with diluted sulphuric acid, a substance is deposited which is removed by filtration. The filtrate is dilated with ether, and the residue of the ethereal solution, together with the substance remaining on the filter, recrystallized from boiling water, being at the same time treated with animal charcoal. The colorless needles thus obtained correspond to the composition $C_{10}H_{10}O_5$, and are opianic acid.

With nitric acid, the following process was adopted by the authors, as they wished to ascertain what nitrogenized by-products were formed during the reaction.

Ten Gm. of hydrastine were cautiously warmed with 50 C.c. of nitric acid (spec. grav. 1.300) and 25 C.c. of water to 50–60° C. 122°–140° F.), and kept at this temperature until a small portion tested with ammonia ceased to produce a precipitate. Care must be taken to avoid any considerable evolution of carbonic acid. After standing some time, the cold solution deposits a large amount of colorless crystals which are opianic acid. On supersaturating the filtrate with very concentrated potassa solution, a white, voluminous precipitate is produced, which soon becomes crystalline. After being dried and recrystallized from benzol or acetic ether, crystals of a new base are obtained which has been analyzed, but needs further study.

Since *opianic* acid is thus one of the decomposition products of *hydrastine*, and the same is obtained from *narcotine*, a very close relationship of these two alkaloids—one from hydrastis, the other from opium—must be suspected. It is true that the basic portion of the decomposition of narcotine, viz., cotarnine, is not identical with the base above described, yet it is so very similar that (as the authors say) it would be taken for cotarnine, were it not for the analytical results.

The relationship of hydrastine to narcotine is, however, further demonstrated by their behavior towards potassa. If powdered hydrastine is introduced into a concentrated watery solution of potassa, and heat is cautiously applied, after the water has evaporated, the hydrastine melts to a viscid mass. On removing the latter mechanically, it becomes hard on cooling, and is then is easily soluble in water. When the aqueous solution is neutralized by a diluted acid, unaltered hydrastine separates again. The same has been observed by Wœhler to occur in the case of narcotine. Another remarkable coincidence is that both alkaloids deviate the ray of polarized light to the left in chloroformic solution, but to the right in an acid aqueous solution.

If the residues left after the separation of berberine and hydrastine are strongly concentrated, acidulated with sulphuric acid, and the filtrate shaken with ether, large crystals of a faint yellow color will be obtained on evaporation. This substance may be obtained more easily by shaking the liquid extract of the root with ether before the removal of the berberine and hydrastine. On analysis, this substance proved to be free from nitrogen and neutral, and therefore not identical with the other alkaloids supposed to exist in hydrastis. So far it appears to be a substance partaking of the properties of lactones.—After *Berichte d. Deutsch. Chem. Ges.*, 1886, 2,797.

### Cinchona Cultivation in Mexico.

Cinchona was first introduced in Mexico by the Emperor Maximilian in 1866, upon the advice of Mr. Maury, a scientist and lieutenant in the United States navy, who had been making a tour through the South American Andes, and was struck with the climatic similarity of those regions to certain parts of Mexico.

The Emperor Maximilian applied for cinchona seed to Mr. Markham, who had introduced the plant in the East Indies, and received from him a supply of three different species, together with instructions regarding the treatment of the seed.

By the emperor's orders, the seeds were handed to the Geographical and Statistical Society of Mexico, who, in turn, commissioned a Mr. José Apolinar Nieto, of Córdoba, to plant them, and supplied him with the necessary funds for the experiment.

About the same time that these experiments were instituted, Dr. Hugo Finck, a German resident in Mexico, received from the late Mr. Daniel Hanbury, per post, a small quantity of Cinchona Condaminea (officinalis) seed, but without any instructions as to its mode of treatment. Dr. Finck planted these seeds in the open air, under the shade of trees, with the result that a large proportion germinated, but only three seedlings survived the first season. These three plants have now matured to powerful trees, and are still flourishing.

Mr. Nieto, to whom the seeds sent by Mr. Markham had been entrusted, succeeded in raising a large number of plants, which he distributed carefully among intelligent planters. In his own garden he planted several hundred seedlings.

The plants, being treated with every care, flourished exceedingly, some of them flowering and producing good seed after the third and fourth year.

Dr. Finck, in addition to the small quantity of seed which he had received from Mr. Hanbury, procured a large number of seedlings from Mr. Nieto, and planted them, in 1870, on an estate and a farm of his in the neighborhood of Córdoba, at a height of between 1.800 and 2,000 feet above the sea-level. But the mean temperature of these plantations, 75° F., was found too warm, and the plants did not succeed, although they attained a height of thirteen to sixteen feet. In 1873, only 115 of the trees survived.

Dr. Finck, notwithstanding this disappointing result, remained a firm believer in the feasibility of successful cinchona growing in Mexico. In 1874, he made a fresh attempt, this time on a "rancho" about 2,900 feet above sea-level, and had the satisfaction to see his efforts covered with complete success, and to see other planters following his example. At present, 12,000 trees are flourishing on Dr. Finck's plantation, and it is said that the total number on the plantations around Córdoba is nearly 20,000. A great many varieties have in course of time sprung up from the original three species, and the alkaloidal percentage of the Mexican cinchona is equal to that of the best Bolivian bark.

In Mexico, cinchona grows best at an altitude of 2,900 to 3,500 feet on lightly inclining mountain slopes with a porous subsoil, such as sandstone or conglomerate. Level land, unless it be perfectly well drained, does not suit the trees; they die wherever stagnant water is found.—*Chem. and Drugg.*

**Eucalyptus Honey.**—At a meeting of the Academy of Medicine held on January 25th, Dr. Caraman read an interesting communication on the honey made in Tasmania by the native wild bees. A French naturalist, M. E. Guilmette, having noticed near the top of a lofty eucalyptus tree a very large hive surrounded by a sort of black bees unknown to him, cut down the tree, and thus secured nearly eight thousand pounds (3,500 kilos) of honey. In other places he obtained still larger quantities from a single hive. The bee which produced it is smaller than the European, but otherwise differs but little in its general habits. The honey has a strong flavor of eucalyptus. When given to dogs, who are very fond of it, its effect after a day or two is to cause a marked retardation of the heart's movements, and a sensible decrease of the number of pulsations. On man the action is the same. When mixed with water or milk, it forms a very palatable drink, and causes a pleasant feeling of warmth throughout the body. The voice becomes clearer and louder, and the lungs seem stronger and more elastic. Dr. Caraman concludes that eucalyptus honey would probably prove efficacious in bronchial affections, irritation of the larynx, and also in scrofulous diseases.—*Chem. and Drugg.*

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# EDITORIAL.

THE practice of selling at retail is not the only cause of complaint against wholesalers and jobbers in drugs. Some of those who publish annual price-lists are said to make a patronage of their advertising pages a condition upon which they will handle the goods of manufacturers, and the charge for space is such that it not only pays the expense of the entire publication, but leaves a margin of profit, besides affording the wholesaler a free advertisement for his own wares. In the case of individuals who manufacture a single article, or a few things only, on which there is a comparatively small margin of profit, the percentage allowed to the jobber and the sum extorted for the advertisement leave him next to nothing for expenditure on other forms of advertising, so that he feels himself to be quite at the mercy of the wholesaler, and has the choice only of giving up his manufacturing or of conducting it for the benefit of the wholesaler who handles his goods. This is particularly hard on the retail pharmacist who has the skill and appliances for manufacturing some specialty in connection with his retail trade, but has not the necessary money or space for carrying a considerable stock of the article, or good facilities for introducing it to the market.

THE effect of this condition of things is calculated to prevent any considerable manufacturing on the part of retailers, and is calculated to lead them, in time, to give up the manufacture of articles regularly demanded in their own business, since the laboratories established by the wholesale dealer, whose advertising is paid for by others, enables him to make them in large quantities, and place them on the market at less cost than can be done by others. It may even become cheaper for the retailer to buy ready-made goods than to make them himself, owing to the saving that the manufacturer on a large scale may make through the use of by-products, and the possession of large and improved apparatus.

THE effort being made in Brooklyn, N. Y., to secure legislation which will include cocaine and its salts among the remedies which can only be dispensed on a physician's prescription, has led to a correspondence in the columns of a New York daily paper, which shows that no such classification of drugs exists under the laws of the State, and that there is practically little or no restraint exercised by the laws upon the sale of poisonous drugs. Few persons, it is said, who wish to buy poisons without a physician's prescription, experience any difficulty in obtaining whatever they desire, the form of giving their names and the purpose for which the poison is wanted being practically without value.

We doubt whether the existence of the laws on the subject of retailing poisons has really lessened the number of instances when they have been used for criminal purposes. The only effect has been to create more trouble for apothecaries, none of whom would knowingly sell a poison to a person whom he had the least reason to think likely to make improper use of it, whether the sale were attended with legal restrictions or otherwise.

THE PHARMACY LAW before the Pennsylvania Legislature contains a clause which will legalize "counter prescribing" and has awakened opposition on the part of the medical profession. It remains to be seen whether sufficient influence can be brought to bear upon the legislature to secure its enactment.

A PHARMACY law has passed the Nebraska Legislature. *Section* 1 creates a Board consisting of the Attorney-General, Secretary of State, Auditor, Treasurer, and Commissioner of Public Lands and Buildings, who shall appoint five examiners or secretaries who shall be skilful retail pharmacists of seven years' practical experience, and who are actually engaged in business in Nebraska. The latter assist the Board in conducting examinations, etc., and receive $5 per diem for actual service. These are selected from the nominees by the State Pharm. Assoc. Excess of receipts over expenses to be paid into State treasury, to be used in case receipts fall below expenses. *Sec.* 2 provides for organization of the Board; Secretary of Board to receive $100 per year. Defines duties of Board and times for holding examinations, etc. *Sec.* 3 provides for registration of persons in business at the time of passage of the act. *Sec.* 4 defines the qualifications to be possessed by persons who may be registered as pharmacists. *Sec.* 5 relates to the registration of assistants. *Sec.* 6 provides for annual renewal of registration; exhibition of certificate; reporting change of business location, and penalties for failure to do either. *Sec.* 7 revokes certificate when obtained fraudulently. *Sec.* 8 imposes a penalty for infringement of the law. *Sec.* 9 exempts retail dealers engaged in business not less than five miles from the nearest registered pharmacist, and registered resident physicians dispensing their own medicines. *Sec.* 10 relates to adulteration or substitution of drugs, medicines, chemicals, etc. *Sec.* 11 defines the jurisdiction of courts and mode of prosecuting infringements of the act. *Sec.* 12 exempts registered pharmacists from jury duty. *Sec.* 13 declares the act to be immediately operative.

MR. GEORGE W. SLOAN, of Indianapolis, formerly President of the Amer. Pharm. Assoc., is about to establish himself in business again and some of his numerous New York friends have taken advantage of the occasion to present him with a memorial of their affectionate regard, in the form of a complete set of weighing apparatus, made by Henry Troemner. The prescription scale with agate bearings and solid silver pans is in a case of mahogany and glass; the counter scale has a plate glass box inclosing the works which are plated with gold. Each case bears the inscription: "Presented to George W. Sloan, by his Friends in the American Pharmaceutical Association, February, 1887.

**The Medical Standard** is a new medical monthly of 32 pages, published by G. P. Engelhard & Co., of Chicago, (publishers of *The Western Druggist*), which commences with the February issue of this year.

**The Jacksonville Price-Current and Florida Trade Journal** is a weekly of 20 pages 4to, of which above 4 pages are text, 5 pages prices current, and the remainder are "ads." It is to be issued weekly, and is devoted to the interests of trade generally, and costs $1 per year.

**The Chicago College of Pharmacy** had its twenty-second commencement exercises in Attfield Hall, College of Pharmacy Building, on Wednesday, Feb. 23d.

**The New York Microscopical Society** held one of its entertaining receptions, in Lyric Hall, on the evening of March 4th, over fifty microscopes being arranged for exhibition of curious and interesting objects.

### A Remarkable Salt Bed.

ONE of the most remarkable salt formations in the world is located on the isle of Petit Anse, Southwestern Louisiana, 125 miles due west of New Orleans. It is owned by the Avery family. This singular salt deposit is sufficiently unknown to bear the light of a more thorough investigation than it has had. The deposit is pure crystal salt. So far as it has been traced, there are 150 acres of unknown depth, explored 140 feet down. The surface of the bed undulates from one foot above to six below tide level. The earth covering the salt ranges from ten to twenty-three feet in depth, but one hill rises 183 feet above, showing that an after-formation took place. On the top of the salt, beneath the earth, have been found the remains of the mastodon, mammoth, sloth horse (*Equus fraternus*), tusks and bones intermixed with Indian relics, such as arrow and spear points, tomahawk heads, paint pots, mortar and pestle, and pottery of all kinds. The dip of the salt is eight degrees. There is a deposit of pink sandstone quite decomposed, a coal formation thirteen to seventeen feet thick and seventy-two per cent carbon, the lignite cropping out a hundred feet above the sea. Over the salt come pink and yellow clay beds, then the sandstone and then the clay, each stratum trending toward the north. There are also sulphur springs. The salt is a conglomerate mass of crystallizations, which in the mine look like dark salt, but when exposed to the light are seen to be white. By analysis the salt is 99$\frac{88}{100}$ per cent pure, the remaining three twenty-fifths is made up of sulphate and chloride of calcium. The position of the salt shows it to be older than the coal and sandstone which lie above it, and also the mastodon and contemporary prehistoric mammals. The deposit was discovered in 1862 while a well was being excavated. It was seized by Jefferson Davis and afterwards by Admiral Farragut. It is now worked by a New York concern, which pays she Averys $5,000 per month royalty. To show the value of land here, it may be stated that a single acre, on which grow little peppers, yields a clear profit of $10,000 per year on the well-known Tobasco table sauce.—*American Naturalist.*

### Fluoride of Silicon as a Poison.

SIR CHARLES A. CAMERON reports a remarkable property of fluoride of silicon, heretofore considered an innocuous or indifferent gas, namely, that it possesses strong toxic properties. As this gas is liable to be given off more or less abundantly in the preparation of artificial manures and other chemical operations, the attention of physicians and sanitarians is directed to it.*

The author accounts for the death of two men who worked in an artificial manure works, on the assumption that they inhaled silicon fluoride, a gas evolved in making superphosphate of lime. He shows that the phosphate used in the works contained 6.36 per cent of calcium fluoride, and that a ton of it, if treated with a full complement of sulphuric acid, would evolve 32.78 cubic metres of silicon fluoride gas. He gives elaborate accounts of his examination of the lungs, heart, etc., of the last man killed, as he believes, by inhaling silicon fluoride, and from this examination and from the symptoms during illness, concludes that fluoride of silicon caused his death. In the lungs traces of fluorine and 0.75 Gm. of silica were found.

Experiments made with rats and guinea-pigs proved that silicon fluoride was more poisonous than carbonic oxide; 0.5 per cent rendered air rapidly fatal to a guinea-pig.—After *Chem. and Drugg.*

**Burmese Gamboge.**—It has long been known that different varieties of gamboge-yielding trees grow in the forests of Tenasserim and Martaban, but so far this knowledge does not appear to have been put to commercial use. In 1875, Mr. Whittall, of the Indian Forest Department, drew attention to three different species of trees, belonging to the genus *Garcinia*, growing in Southern Tenasserim, and known to the natives as *Tawmengoot*, *Parawah*, and *Parajay*. The *Parawah* yields an exudation of a white color, which changes to a reddish-yellow on exposure to the atmosphere, and is scarcely at all soluble in water, but yields to alcohol. The *Parajay* yields a rather copious exudation which, when dissolved in spirits of turpentine, affords a beautiful permanent yellow varnish for metallic surfaces, and on this accont has been called the "gamboge tree," as well as the "yellow varnish tree," but its exudation does not form an emulsion with water, and Mr. Whittall, therefore, considers it had no claim to be considered a real gamboge tree. The *Tawmengoot* was, in Mr. Whittall's opinion, the gamboge tree of the South Tenasserim forests. He says:—"The gum resin is larger in quantity and darker, and of a more glossy color than the others; neither wet nor dry is it so sticky, and so readily does it form an emulsion with water that the exudation on the outer bark is completely washed away by the rains." Samples of the gamboge yielded by the three varieties have been sent to Calcutta for valuation. That of the Tawmengoot was found to yield a good paint, but the other varieties did not answer well. It appears that in Burmah the cost of collecting gamboge is at present too high to admit of a remunerative export business.—*Chem. and Drugg.*

**Monobromsalol.**—A derivative of salol, or salicylate of phenyl, has been studied by Dr. Hugo Eckenroth, of Ludwigshafen on the Rhine.

When salol in alcoholic solution is mixed in with bromine water, a white precipitate of bromsalol is produced. This is, however, not a good method of preparing this body, as the bromine water also precipitates undecomposed salol. A better method is the following:

Dissolve about 10 Gm. of salol in about 60 C.c. of absolute alcohol, and very gradually add to the solution drops of bromine, waiting each time until the yellow tint of the liquid has entirely disappeared. This is continued until finally the yellow tint remains. After about ten hours, the solution will again become colorless and a considerable amount of the new compound will have crystallized out. These crystals are collected, drained, washed with a little alcohol, and twice recrystallized from alcohol. The product is *monobromsalol*, forming white, silky needles, insoluble in water, difficulty soluble in cold, but easily soluble in hot alcohol and ether.—After *Arch. d. Pharm.* 1886, 930.

*Note of Ed. Am. Dr.*—This compound has been prepared for the use of a physiologist of this city, who will eventually report on it.

**Trinidad Lime Juice.**—A large quantity of lime juice has been exported from Trinidad in recent years. The simple juice finds a market in America and the condensed juice in England. A tree yields on an average about ten gallons of juice. The limes are allowed to drop off, and then passed first through the cutter, which rips them open, and next through rollers and a press to separate the juice. These cutters, rollers, and press are constructed in a very primitive way, and admit of great improvement. The juice is then exported either as it is or condensed by boiling. A barrel of limes yields seven gallons of juice. The cost of producing lime juice, including packages, should not exceed 6*d.* per gallon. The essential oil of limes is extracted from the rind before crushing, by grating on rasps with the hands; the oil thus extracted is called hand-made oil. A hundred gallons of juice will yield by distillation about three quarts of the essential oil.—*Chem. and Drugg.*

**Solution of Carmine.**—A superior solution of carmine, which must *not be used*, however, for solids or liquids *to* be taken *internally*, is prepared, according to P. G. Unna, in the following manner:

Dissolve 1 part of carmine in 10 parts of water of ammonia, add 10 parts of water, triturate well, and filter. Pass the filtrate through the filter once a day for several days and expose it to the air to evaporate the ammonia. Then add to it enough concentrated solution of picric acid to cause all ammoniacal odor to disappear, and finally sterilize the liquid by saturating it with chloroform.

**Thalline Sulphate as a Remedy in Gonorrhœa.**—Dr. E. Kreis has ascertained that thalline sulphate, even in dilute (¼ to ⅓%) solution is a rapid destroyer of the gonococcus. Prof. Gohl has utilized this observation in practice, and has found that the treatment of most cases of gonorrhœa may be very materially hastened by injections of solutions of thalline sulphate. It is recommended that the first injection of about ½ fl. oz. be allowed to run out, and that a second one be then immediately injected as far back as possible.

The results so far reported are very favorable.

**False Jequirity Seeds.**—Messrs. Heckel and Schlagdenhauffen report having received an invoice of jequirity seeds (from *Abrus precatorius* L.) direct from India, in which they discovered an admixture with the seeds of *Adenanthera pavonina* L., belonging to the same family. These seeds are thick, nearly lenticular, of a bright scarlet color, and have a circular ring around the centre. They were evidently present only by accident.

**A Wooden Tank**, capable of holding nitric or sulphuric acids, may be made by covering the inside with paraffin. Cover the inside with paraffin and then go over the surface with a sad-iron heated to the temperature used for ironing clothes. Melt the paraffin under the iron so as drive it into the wood as much as possible, then with a cooler iron, melt on a coat thick enough to completely cover the wood.—*Sanitary Plumber.*

**Cement for Celluloid** may be made by dissolving 1 part of shellac dissolved in one part of spirit of camphor, 3 to 4 parts of 90% alcohol. The cement must be applied warm and the fragments held firmly in place until the solvent has evaporated.—*Sanitary Plumber.*

**The Swiss Cross** is the name of a new monthly magazine, of 40 pages, published in New York under the auspices of the Agassiz Association. Much of the material contained in the first number is taken from *Science*. N. D. C. Hodges, 47 Lafayette Place, is the publisher. Price $1.50 per year, or $1.00 to members of the A. A.

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* "The Toxicity of Silicon Fluoride." By Sir Charles A. Cameron, M.D. Reprint from the *Dublin Journal of Medicine*, January, 1887.

**Prof. Wm. Saunders,** of London, Ont., has been appointed director of the Experimental Farm Stations of Canada, his jurisdiction extending over the stations in all parts of the Dominion, under the direction of Hon. Mr. Carling, Minister of Agriculture. Mr. Saunders has been visiting institutions of a similar character in the United States, and also in England in charge of the Canadian fruit display at the Colonial and Indian Exhibition, and since his return has undertaken several experiments in the shipment of early varieties of fruits and vegetables in refrigerators with success. Mr. Saunders is singularly well qualified for the position, having been for years president of the Ontario Fruit Growers' Association, a position which he held by reason of his superior knowledge of all that appertains to the cultivation of fruit. He is recognized as one of the leading pharmacists of the Dominion, and was at one time one of the chief officers of the American Association for the Advancement of Science. As an entomologist he has few superiors, and by virtue of that qualification eminently fitted for this extended field of usefulnss.—*Western Druggist.*

**Dr. Louis Mialhe,** recently deceased, was at one time a pharmacist and a writer of some fame. Born in 1807, at Vabre (Tarn), in Southern France, he graduated with honors in 1833 at the Paris School of Pharmacy, and in 1838 obtained the diploma of Doctor of Medicine, but pharmacy always remained his preferred science. A professor of pharmacology at the Paris School of Medicine from 1842 to 1848, Dr. Mialhe was in 1867 elected a member of the Academy of Medicine in the section of pharmacy. He contributed many scientific papers to the medical and pharmaceutical periodicals. His most important works were the following: "Traité de l'art de formuler" (1845); "Recherches sur les purgatifs" (1848); "De l'albumine (1852); "Chimie appliquée à la physiologie et à la thérapeutique" (1855); "De la pepsine" (1860); "Destruction des acides organiques dans l'économie" (1886). All the foregoing are octavos of good size, and some have been translated into foreign languages. Dr. Mialhe was a knight of the Legion of Honor, but in compliance with his express wishes, the military honors due to this dignity were not rendered at the funeral.—*Chem. and Drug.*

**Chalk Ointment** made with equal parts of precipitated carbonate of lime, or prepared chalk and lard, with the addition of half a drachm of pure carbolic acid to each ounce, is much used in St. Bartholomew's Hospital as an application to erysipelas. The lard should be previously melted to facilitate combination.—*Practitioner.*

**Compressed coffee** has been recently introduced, and bids fair to become a lasting success, as it is extremely portable, attractively packed, and retains for a very considerable period all the aroma and strength of the freshly-ground article. It is the invention of Mr. Otto E. Webber, of Dresden and Berlin, who also makes a specialty of compressed tea, which is another useful adjunct to ship's stores and for travellers.—*Conf. Jour.*

**Faith-Cures by Water.**—St. Petersburgh society has been somewhat interested in a medicinal water discovered by a Baron Vrevsky, and stated to effect marvellous cures. Owing to an official permission to continue the use of this water being being necessary, the medical committee of St. Petersburg caused it to be analyzed; and the result of this analysis, according to the *Official Messenger*, is to show that this famous and universal remedy is absolutely identical with the water of the Neva.

**"Blood Writing."**—Rub red iodide of mercury on the surface of a sheet of note paper with a piece of cork. Take the paper so prepared and hold it over the flame of a candle or lamp, slowly moving it to prevent burning. The red color will quickly disappear. Anything now written or drawn on the paper with a pointed piece of wood will appear as if written in blood.—*Chem. and Druggist.*

**Medical Dispensing.**—Speaking of dispensing as performed by "unqualified" assistants in the offices of medical men in England, a writer in the *British Medical Journal* says: "Breaking the neck of the liquor strychnine bottle, they pour the drug into another, in which had previously been kept chloroform water, and finding it too much trouble to scrape off that label, they stick the liquor strychnine label on the chloroform water label, which, being naturally dry, absorbs the liquid gum from the other, causing it in a few days to drop off, leaving the liquor strychnine labelled chloroform water, which will now be used as such."

**To Write on Steel.**—Dissolve powdered sulphate of copper in a small quantity of water; rub the surface of the steel over with a piece of wetted soap, so as to cover it with a thin coating; then dip the point of a pencil into the solution, and with it write or draw the required design on the steel. After a few minutes wash, and the steel will be found to be beautifully and permanently engraved.—*Chem. and Druggist.*

## CORRESPONDENCE.

### Correction.

Editor of American Druggist:—In your issue of January, page 14, under *Injectio Morphinæ Hypodermica, Magendie*, you made a mistake in the strength. Please correct this. It should be eight times stronger.

I also call your attention to an error in the United States Dispensatory [15th ed.], page 124, where the dose of aconitine is given as "one-fifth of a milligramme ($\frac{1}{320}$ of a *gramme*)." This should be $\frac{1}{320}$ of a *grain*.

Scranton, Pa. Ch. Koempel.

We are much obliged to our correspondent for pointing out the error. Of course, the water in the Magendie formula should read 1 fl. ℥, instead of 1 fl. ʒ. This is another instance which may be quoted in favor of abandoning the drachm and ounce sign altogether. When the hospital formulary was about to be printed, it was contemplated to replace these signs by the abbreviations "dr." and "oz." But, as it happened that a special, very distinctive font of apothecaries' signs was placed at the disposal of the printer who printed the original edition, the old method was maintained. The apothecaries' signs in the ordinary fonts available in printing establishments are often very poor, and it will be our aim to bring about some improvement in this matter, if possible.

### Opium Assay.

*To the Editor of The American Druggist.*

Dear Sir:—I have just received, through the kindness of a friend, a slip cut from the Jan. number of your Journal and containing the correspondence of Mr. Conroy and Messrs. Braithwaite and Farr. Mr. Conroy appears to be very much incensed because we were so bold as to question a statement of his that was unaccompanied by experimental evidence.

The paper referred to by him was not undertaken, as Mr. Conroy seems to think, for the sole purpose of criticising him. On the contrary, it is not improbable that, if he had accompanied his original statement with a full account of his experiments, we would have acccepted it without question. The experimental work reported in our paper was performed by Mr. Meinert, under my instruction, and I have every reason to believe it was done conscientiously and carefully. As we are nearly three thousand miles apart, I cannot consult him before writing. I regret that I have no facilities here for doing so, or I should be glad to perform Mr. Conroy's "simple experiment" for his gratification, but should want more explicit instructions than to dissolve 2.5 grammes of solid extract "*equal in consistence to good new opium*" in 50 C.c. of water. Mr. Conroy contends "that it is quite impossible to expel the whole of the moisture from the marc by drying at 100° C." That, of course, is a mere assertion which may or may not be true.

The seeming inconsistency pointed out by Messrs. Braithwaite and Farr was noticed by us before the paper was read; but the several experiments (with moist opium) seemed to agree among themselves, and the results were given as obtained.

In conclusion, I take the liberty of repeating what was said (in substance) in our former communication, that if an important change is to be made in the pharmacopœial process for the assay of opium, that change should not be based upon one experiment, especially when that experiment itself is founded entirely upon so general a statement as "that opium yields on an average 50 per cent of solid extract, equal in consistence to good new opium," but upon the result of a large number of experiments.

Very truly,
T. J. Wrampelmeier.

San Diego, California, Feb. 12th, 1887.

**Miss Klumpke,** who recently was successful in passing the examinations for position as *interne* in the Paris hospitals, is the first woman who has succeeded in the *concours* for the place. In the written examination, she ranked second (*ex æquo* with one or two others). She obtained twenty-seven marks out of a possible maximum of thirty, the highest number reached being twenty-eight. She has already been known by her work in the domain of neuro-pathology, and her success has caused no little grumbling among the male students, who dislike being distanced by a woman.—*Nature.* [Miss Klumpke is a resident of Boston, Mass.]

**Bismuth to Prevent the Formation of Fusel Oil.**—Messrs. Gayon and Dupetit, at the last sitting of the Academy of Sciences, presented a paper describing a method for preventing during the production of alcohol the secondary fermentation to which is due the formation of the higher alcohols so detrimental to the public health. They use for this purpose various bismuth salts, whose addition to the fermenting liquor causes, they claim, pure, ethylic alcohol only to be generated, to the total exclusion of its more complicated congeners.—*Chem. and Drug.*, Nov. 13th, 1886.

## QUERIES & ANSWERS.

*Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer, for the information of the editor, but not for publication.*

No. 1,874.—**Detection of Mercury in Urine** (Medicus B.).

"Kindly answer: What simple and reliable method of examining urine for the detection of excreted mercury may be employed by the busy practitioner? The amalgamating and electrolytic processes are too complicated, and that of Mayençon and Bergeret (in 'Neubauer and Vogel') is pronounced unrealible."

We regret to say that there is no short road to the discovery of mercury in urine. You are probably aware that mercury as well as lead enter into peculiar insoluble compounds, in the circulation, the nature of which is not yet properly understood. This much, however, is certain, that they are not eliminated from the system, at least in any noticeable quantity, until some substance is accidentally or intentionally ingested, which is capable of making a soluble double salt with the mercury, and thereby carry it out through the kidneys, and possibly also by other channels. The most efficient agent for accomplishing this, in the case of mercury as well as lead, is *iodine*, in the form of iodide of potassium, or sodium, or some other alkali iodide. It is known, however, that some time must elapse (according to some authorities, not less than three weeks) after the treatment has commenced before any of the metal will make its appearance in the urine. This applies, however, only to such cases where the mercurial infection is old and of long standing. When such salts as the biniodide of mercury have been taken, or other soluble double salts of mercury, the latter metal will appear in the urine almost simultaneously with the iodide, but, so far as known, it does not appear to be eliminated as fast as it is ingested. In other words, a certain proportion is retained and is only gradually displaced by a pure iodide treatment.

These remarks having been premised, we would say that Mayençon and Bergeret's method has indeed been dropped by Neubauer [not Neugenbauer, as it is often misspelled] and Vogel in their latest edition.

Though our correspondent declares the electrolytic methods too complicated for the busy practitioner, yet we think that, with a little practice, one or the other of these could be made to work very expeditiously. The next best method, then, would be a "galvanic" one, or rather the amalgamation process. If copper, brass, gold, etc., are immersed in an acidulated solution containing mercury, the latter will be deposited upon the former in a metallic state. Applied to the urine, this is performed as follows:

Digest a considerable quantity of the urine, say at least 8 fl. oz., previously acidulated with a little hydrochloric acid, with a little fine leaf brass or gold, during 5 to 10 minutes, at a temperature between 150° and 170° F. (Gold leaf, such as is used for gilding, is not suitable, as it is too thin and unsubstantial. To be of proper thickness, it should be like tinsel.) The bunch of metallic leaf is then removed, and successively washed with boiling water, alcohol, and ether. All the mercury which was in the urine is now deposited upon the brass or gold. A small glass-tube about 3 or 4 inch. long, and $\frac{1}{8}$ inch. bore, is now drawn out at one end to a narrow capillary tube (of which all but about two inches is to be cut off). The amalgamated bunch of metal is pushed into the bottom of the wide tube, and the latter also drawn out at the other end. At either end there will then be a capillary tube about two inches in length, and in the centre a section of the original tubing, likewise about two inches long. The central portion of the tube is now heated while being held in a horizontal position and constantly turned, to not more than a just *incipient* dull red heat. The flame should extend over the whole central portion.

If gold foil was used, only mercury will distil off, and collect as a more or less black ring in the capillaries. If brass foil had been used, some zinc will distil over likewise, but this does not volatilize as far as the mercury. When the tube is cold, a little iodine is pushed into the orifice of one of the capillaries, and while it is held somewhat oblique, the iodine is volatilized so as to fill the interior and pass out at the other capillary. The iodine will thus convert any metallic mercury into red biniodide, even traces of which are readily recognizable.

This method may appear tedious, but if it has been once or twice performed, best on urine containing a known quantity of mercury, it will be found quite easy of execution.

No. 1,875.—**Rubber Adhesive Plaster** (H. S.).

Request the formula of a rubber adhesive plaster similar to those now in the market, and spread into rolls of different width.

That it is about time for devising a formula for such plasters, with a view to their eventual introduction into the U. S. Pharmacopœia, there is no doubt. So far, however, it appears that every one who has successfully devised a plaster mass of the kind alluded to, utilized the same for his private benefit rather than for the public weal. And we cannot blame him. For the experiments that may have preceded his success have probably been costly. At present we have only some very general and indefinite conception about the composition and *preparation* of the mass. We are tolerably certain that there is a good deal of balata, or gum chicle, among the constituents. As to the rest, we have no definite knowledge.

Even if the composition of these plasters should become fully known, it is very doubtful whether it would pay to prepare the mass extempore or for use on a small scale. Very likely it would require special apparatus to get some of the ingredients into a suitable condition, and consequently a successful preparation of *handsome* and "attractive" plasters is likely to remain in the hands of large manufacturers.

No. 1,876.—**Gerhardt's Centrifuge.**

We have had a number of inquiries so far, regarding Gerhardt's Centrifugal Apparatus, illustrated in our August number of 1886, page 145. The present correspondent wants us to state the price, etc. This we are unable to do, as we have never directly corresponded with the maker, whose apparatus we have illustrated for its intrinsic merits and not by request. Our correspondent can easily ascertain the cost by inquiring through his wholesale drug house, or through importers of apparatus (see our advertisements), or by addressing C. Gerhardt, Manufacturer of Apparatus, Bonn.

No. 1,877.—**Characteristics of Cider Vinegar** (W. M.).

A practical and useful synopsis of what can be said on the subject of cider vinegar, as distinguished from acetic acid or from white wine vinegar, is contained in the following, which is an extract from a paper by Dr. B. F. Davenport, late Vinegar Inspector for Boston, written for the New England *Grocer:*

There are certain characteristics peculiar to the residue of a pure cider vinegar, the principal of which are the following: It will be about three per cent in weight, and never less than two per cent. It is always soft, viscid, of apple flavor, somewhat acid and astringent in taste. A drop of it taken up in a clean loop of platinum or of iron wire and ignited in a colorless Bunsen gas lamp flame, imparts to it the pale lilac color of a pure potash salt, without any yellow due to sodium being visible. The ignited residue left in the loop of wire will be a fusible bead of quite a good size, and it will leave a strong alkaline reaction upon moistened test paper, effervescing briskly when immersed in an acid. The presence in a vinegar of the *slightest* trace of any free mineral acid will prevent the ignited residue having any alkaline reaction, or effervescing with acids. The presence of any practical amount of commercial acetic acid added, to "tone up" the strength of the vinegar, will cause the igniting residue to impart another color to the Bunsen flame, and the residue itself will have a smoky, pyroligneous taste or odor. Any corn glucose used in the vinegar will cause its residue when ignited to emit the characteristic odor of burning corn; and as the last spark glows through the carbonized mass, to usually emit the familiar garlic odor of arsenic. For the common oil of vitriol usually used in the production of glucose is now mostly derived from pyrites, which almost always contain arsenic. A glucose vinegar which has been made without vaporizing the alcohol after the fermentation of the glucose will also have a strong reducing action upon a copper salt in an alkaline solution, and also will give a heavy precipitation of lime with ammonium oxalate. A true malt vinegar always contains phosphates, and a wine vinegar cream of tartar. The presence of any acrid vegetable substance in a vinegar is known by the residue having a pungent taste, especially if before the evaporation the vinegar has been exactly neutralized with soda.

In a pure apple cider vinegar, hydrogen sulphide gas will not cause any discoloration, nor will the addition of a solution of either barium nitrate, silver nitrate, or ammonium oxalate cause anything more than the *very slightest* perceptible turbidity. But the addition of some solution of lead acetate—that is, of sugar of lead—will cause an immediate voluminous and flocculent precipitation, which will all settle out in about ten minutes, leaving a clear fluid above. In most of the so-called "apple vinegars" brought into this market from other States, the addition of some of this lead solution will cause but a slight turbidity, without any precipitate settling out for several hours, and even then the precipitate will not be of the same appearance as in apple cider vinegar.

Sophistications of cider vinegar that will not be detected by some one or more of the above-given tests are not likely to be met with, for the simple reason that they are not profitable. To translate percentages of acid strength into the old commercial terms of grains of soda bicarbonate per troy ounce, the per cent may be multiplied by 6.72; or, vice versa, divide the grains by the same factor. To reduce it into grains of potash bicarbonate, 8 would be the factor to be used in like manner.

### No. 1,878.—Rubber and Acetic Acid (U. S.).

Ordinary officinal acetic acid, in the cold, does not attack rubber to a noticeable degree, so far as we have observed. What a very long contact would do we cannot say, as we would have to make an experiment on purpose to ascertain it. But *hot* acetic acid is quite destructive of rubber. We would suggest to our correspondent to start a series of experiments to determine the effect of the cold acid upon elastic rubber as follows: Put some freshly made elastic rubber bands in a series of twenty-four vials, add to each the kind of acetic acid to be experimented with, cork and label them (with date) and set them aside, one set of twelve in a cool place, the other in a moderately warm place. After a certain time (say four months), take one sample of each series and compare the condition of the rubber. After another month, do the same, and so forth. Finally, do not forget to favor us with the results likewise.

### No. 1,879.—Syrup of Iodine of Iron and Quinine (P. & Co.).

I. Bouchardat's formula for this syrup is as follows:

| | | |
|---|---|---|
| I. | Iodine | 5 parts |
| | Iron, in powder | 2 " |
| | Syrup | 1120 " |
| | Sulphate of quinine | 1 part |
| | Diluted sulphuric acid | q. s. |
| | Distilled water | q. s. |

Digest the iodine, iron, and 20 parts of the water until the red-brown color of the iodine has disappeared. Filter through a small filter into the syrup. Then dissolve the sulphate of quinine in 10 parts of water with the aid of diluted sulphuric acid and mix this solution with the previously prepared syrup.

As will be seen, this syrup contains only a minute quantity of quinine, and as to iodide of iron, it does not contain quite two per cent; that is, it is less than one-fifth of the strength of that of the U. S. Ph.

It is impossible to combine much quinine with syrup of iodide of iron, either as hydro-iodide already formed, or as sulphate. The quinine salt must be kept in solution by an acid. Among the acids there is one, viz., hypophosphorous, which not only leaves the iodide of iron unaffected, but even seems to protect it against change. Hence, the following formula, which we have several times employed *extempore*, will probably produce a more desirable preparation:

| | | |
|---|---|---|
| II. | Sulphate of quinine | 10 grs. |
| | Hypophosphorous acid | q. s. |
| | Iodide of potassium | 4 gr. |
| | Syrup | enough to make 4 fl. oz. |
| | Syrup of iodide of iron (U. S.) | 4 fl. oz. |

To the sulphate of quinine add about 5 minims of commercial solution of hypophosphorous acid and then a little syrup. When the quinine salt is dissolved, add the remainder of the syrup and afterwards the iodide of potassium dissolved in a few drops of water. Mix well. Now add the syrup of iodide of iron and mix. Should any cloudiness appear, clear it up by a few drops of the hypophosphorous acid.

A fluidrachm of this syrup contains about 4 grains of dry iodide of iron and about 6 grains of hydriodide of quinine.

### No. 1,880.—Gas-Proof Cement (J. E. L.).

"Please give me the formula for a good gas-proof, flexible cement."

A "flexible" cement that is impervious to gas can probably be prepared only with the aid of india rubber. It will depend very much upon the degree of flexibility which the cemented part is required to possess. If it is to be very flexible, probably a solution of pure india rubber (cut into very thin slices) in benzol or oil of turpentine or chloroform will answer. For most purposes, however, marine glue will probably be the best. This is made by melting together shellac and caoutchouc in suitable proportions; the more of the former is added, the harder will be the cement. The following is the modus operandi:

India rubber, cut into fine shreds or thin slices, 1 oz. Digest this in a closed bottle, in a water-bath, with about 12 parts of coal-tar naphtha or benzol, agitating frequently until dissolved. Then add powdered shellac, in quantity from 2 to 12 parts or more, according to the degree of hardness desired in the cement. If it is to remain flexible, of course a small quantity will suffice, but we cannot specify it, as we do not know the purpose to which it is to be applied. Continue the heat until it is perfectly liquid and the benzol has been to a large extent dissipated. Then pour it out upon clean metal or a marble slab so as to form thin sheets. When it is required for use, heat a sufficient quantity carefully until it melts, and apply it to the object, which should previously be suitably heated. As marine glue is easily spoiled or burnt by being overheated, it is always best to soften it in a capsule over a water-bath. The capsule is then wiped dry and carefully heated on a wire-gauze over a Bunsen flame.

### No. 1,881.—Percolators (M. E. B.).

This subscriber asks us to give information where he may obtain percolators in which either heat or pressure is used for expediting the process.

We presume that the water-bath percolator devised by Mr. B. Fenner, of Westfield, N. Y., is the only one on the market which combines heat with the process of percolation itself. We have illustrated the apparatus in this journal (New Remedies, 1882, 180, where we have inadvertently spelled Mr. Fenner's name wrong). Of pressure percolators we have illustrated that of S. J. Hinsdale (of Fayetteville, N. C.), in New Rem., 1883, 9; and that of N. Rosenwasser (112 Superior street, Cleveland, O.), in New Rem., 1881, 357; and 1882, 262. By communicating with the above named, our correspondent will no doubt obtain full information.

### No. 1,882.—"Smuggled High Wines" (M. E. B.).

"What are the 'high wines' that come from Canada, and are smuggled over all along our northern frontier? etc."

As to "high wines," if there *are* any smuggled over from Canada, I presume they are the same thing as the "high wines" of the United States. These are simply crude alcohol as obtained in the first distillation. This alcohol still contains fusel oil and aromatic substances derived from the source from which it was made. It is used by itself for many technical purposes, chiefly, however, for making artificial liquors, fortifying wines, etc. Pure alcohol is made from it by rectification. Of course, it would not do for making medicinal preparations.

As to the smuggling of high wines from Canada, we confess that we have no knowledge. According to the statement of our correspondent, it would seem as if this were a common occurrence all along the frontier. But we are inclined to doubt this, and believe our correspondent has been deceived. That attempts are now and then made to evade Uncle Sam's exacting tariff we have no doubt, but a continued systematic evasion of the lynx-eyed custom officers is not very probable.

### No. 1,883.—Syrup of Calcium Hypophosphite (S. D. S.).

"In making syrup of calcium hypophosphite according to Procter's formula in Parrish's Pharmacy, I have much difficulty in dissolving all the salt in the quantity of water directed in the formula. The directions say 'use hot water,' although the salt is more soluble in cold."

Our correspondent is quite correct in stating that hypophosphite of calcium is more soluble in cold water than in hot; though, perhaps, it would be more correct still to say that the action of heat, when continued, particularly in presence of sugar, has a tendency to produce insoluble phosphate of calcium. There are some points connected with the hypophosphites, particularly that of calcium, which need clearing up, and this is just one of those about which our knowledge is fragmentary. It is now well recognized by all manufacturers who have much occasion to handle this salt that, in order to get the whole of it into solution, it is necessary to use a small quantity of an acid. Hypophosphorous acid was formerly usually recommended for this purpose, probably for the theoretical reason that it was supposed to be more in harmony with the therapeutic objects for which the salt is administered. But there is so little of the lime salt absorbed at any one time, from any single dose taken internally, that the small amount of acid used to keep the salt in solution is of no significance whatever. Hence any other acid which does not form an insoluble salt with calcium may be used.

The U. S. Ph. uses citric acid. Some manufacturers use hydrochloric acid. We advise, therefore, to modify the process as follows:

| | |
|---|---|
| Hypophosphite of Calcium | 1 ℥ |
| Sugar | 12 ℥ |
| Water | 9¼ fl. ℥ |
| Tinct. Vanilla | q. s. |
| Citric Acid | q. s. |

Dissolve the salt in the water, cold. If there is any insoluble residue left, allow the solution to settle, pour off the clear liquid as much as possible, then add to the residue enough citric acid to dissolve it. (Or, hydrochloric acid may be used.) Next, add the sugar, dissolve by agitation, and lastly add the vanilla.

### No. 1,884.—Antifebrin (Pharmacy).

This new antipyretic is gradually gaining ground, and will, no doubt, make serious inroads into the consumption of other antipyretics. It has been used with good results in the public hospitals of New York, though antipyrine and similar agents are likewise used as yet. It seems that the sphere of general usefulness of these two agents is about alike so far as a reduction of bodily temperature is concerned, but each of them has some special advantages in certain directions. For instance, antifebrin is said to be an efficient agent in diminishing the intensity and frequency of epileptic attacks, but this requires more continued study.

We have published all that was supposed to be of importance regarding the chemical nature and properties of antifebrin, and will only add here a short recapitulation, with a few additional remarks.

*Antifebrin*—or by its true chemical name : *acetanilide* —when crystallized from water, is in form of colorless and odorless scales or rhombic plates, of a somewhat fatty feel and a silky lustre. Upon the tongue it produces a slightly burning sensation. It is not very soluble in water, 1 part requiring 189 parts of water at 43° F. It is much more soluble in hot water and in alcoholic liquids, very easily in alcohol or ether. When heated to 234° F., it melts to a clear colorless liquid, and at 563° F. it boils without decomposition. Acetanilide is neutral to test-paper and very resisting to reagents. But by long-continued boiling with hydrochloric acid, or with solution of potassa, it can be decomposed into its components, viz.: aniline and acetic acid.

The identity of acetanilide (antifebrin) may be established by heating it with an equal quantity of chloride of zinc, whereby a handsome coloring matter of a moss-green fluorescence is formed, which may be dissolved by heating with very dilute hydrochloric acid. The colored product thus obtained is the so-called flavaniline of Fischer and Rudolph.

The following reactions have so far been recommended as the most suitable for testing its purity.

Antifebrin should be odorless and indifferent to blue litmus paper (a reddening would point to free acetic acid). It should melt to a colorless liquid at 234° F. (For this test the substance should previously be well dried, as the least contamination with moisture materially lowers the melting point.) It should boil without decomposition at 563° F., and when ignited upon platinum should leave no residue. On heating 1 Gm. of antifebrin with 50 Gm. of water, a clear colorless liquid should be formed. Any turbidity which might here make its appearance might be due to free aniline, but this would be revealed already by its odor.

No. 1,885.—**Compound Syrup of Phosphates** (M. M.).

The improved process you inquire about is probably that lately proposed by D. S. Sager in the *Canadian Pharm. Journal*. As to its superiority over others, we have no personal experience so far, but expect to have an opportunity of ascertaining for ourselves. Meanwhile we publish the method in abstract :

| | |
|---|---|
| Sulphate of Iron | 1,021 gr. |
| Phosphate of Sodium | 1,021 gr. |
| Acetate of Sodium | 828 gr. |
| Carbonate of Calcium | 1,247 gr. |
| Phosphoric Acid (50%) | 10 av. oz. |
| Carbonate of Sodium | 54 gr. |
| Carbonate of Potassium | 72 gr. |
| Water | a suff. quant. |
| Sugar | 42 av. oz. |
| Orange Flower Water | 2 fl. oz. |

Dissolve the Phosphate and Acetate of Sodium in a sufficient quantity of water; also the Sulphate of Iron in a separate portion of water. Mix the two Solutions, wash the resulting precipitate on a strainer, or, if working with small quantities, on a filter. (The amount of ferrous phosphate thus produced would weigh 511 grains, if dry.) Dissolve the still moist magma in 2 fl. oz. of phosphoric acid [thus it is printed in the author's paper; he does not specify what kind of phosphoric acid; we presume he means that of the Brit. Pharm., which has the spec. grav. 1.500. As this kind of acid is not usually kept in stock, we think it would answer the same purpose to use a small amount of water and enough 50% phosphoric acid to dissolve the salt].

Next dissolve the Carbonate of Calcium in 14 fl. oz. of water with the aid of 9½ av. oz. of phosphoric acid (50%), using heat. Set this solution aside.

Also dissolve the Carbonate of Sodium and Potassium in 1 fl. oz. of water with the aid of ½ av. oz. of phosphoric acid.

Mix the three solutions in the order named, viz., the ferrous phosphate solution with the phosphate of calcium solution, and then add the last. Finally, add enough water to make altogether 28 fl. oz. If necessary, heat the solution gently to clear it; then filter.

Dissolve the sugar without heat, if possible, in the filtrate, and add whatever flavor is desired, usually 2 fl. oz. of orange-flower water, or enough tincture of vanilla. The coloring matter is to be added last, and best in solution.

This syrup has a pleasant acid taste, does not candy, and has the spec. grav. 1.370.

No. 1,886.—**Buchinha** (Dr. P.).

This is the name of a Brazilian drug which has long been in use there as a drastic purgative. It is derived from *Momordica operculata* L. (Luffa operculata Cogn.), natural family Cucurbitaceæ. The active principle is not contained, as in the case of the other members of this family, in the parenchymatous fundamental tissue, but in the network formed by the vascular bundles. The fruit cannot be used medicinally until the epidermis and the parenchyma have been removed, which is probably accomplished by means of water. It is 1¼ to 2¼ inches long and has the form of a plum.

In the network of vascular bundles, two portions may be distinguished, viz., an external portion, consisting chiefly of horizontal strands forming large meshes, and an inner one, in which the strands are closer together and more vertical. Between the bundles, which form the dissepiments of the fruit, the tender-walled parenchyma is still partly preserved.

The seeds are about ⅜ inch long, 3/16 broad, flat, of grayish-brown color, with black spots, and having two ridges on either side near the pointed end.

The taste of the drug (fruit, minus epidermis and parenchyma) is intensely bitter, recalling the taste of colocynth. The microscope reveals a dry substance adhering mostly to the outside of the parenchyma cells of the dissepiments. This dry substance is insoluble in water, but soluble in alcohol, and perhaps constitutes the active ingredient.

The plant is described by De Candolle ("Prodromus," III., 311), Martius, and others. It has been figured by Commelyn ("Plant. rar.," tab. 22). Notices on its uses will be found in various authors, for instance, in Langgaard's "Novo Formularia," in Chernowiz's well-known formulary, and others. A rare pamphlet published at Rio de Janeiro in 1836* gives the name "Bucha de Paulista" or "Purga de Jão Paes" to *Momordica operculata* L., and the name *Buchinha* to *Momordica purgans* L.

The drug is being experimented with in Europe, and samples have reached this country. Unless it has some very special advantages over other drastic purgatives, it is doubtful whether the long list of the latter should be still further increased.

No. 1,887.—**Composition of Natural Gas** (Alleghany).

Natural gas has been analyzed quite frequently. It is a mixture of various gases in varying proportions, according to the locality. The following are the constituents so far determined, with their highest and lowest amounts:

| | | | | |
|---|---|---|---|---|
| Carbonic Acid, $CO_2$ | 2.28 | — | 0 | per cent. |
| Carbonic Oxide, CO | 1.00 | — | 0 | " |
| Hydrogen, H | 35.92 | — | 4.79 | " |
| Marsh Gas, $CH_4$, | 89.65 | — | 49.58 | " |
| Ethane, $C_2H_6$ | 18.12 | — | 3.60 | " |
| Propane, $C_3H_8$ | trace | — | 0 | " |
| Nitrogen, N | 23.41 | — | 0 | " |
| Oxygen, N | 2.10 | — | 0 | " |
| Olefiant Gas,† | 0.98 | — | 0 | " |

The proportion, by weight, of carbon to hydrogen in the gas varies between 3.08 to 1, and 2.59 to 1.

No. 1,888.—**Manufacture of Saccharin** (Several Readers).

It is expected that *saccharin*, of which so much noise is made at present, will be put on the market, in any desired quantity, by about May 1st, 1887.

The company which has undertaken the manufacture has established very extensive works, and has at its disposal a large capital. The inventors and others who are interested in the subject have refused to comply with the requests or suggestions made by chemists and the professional press generally, viz., that the name *saccharin*, which has long been used in chemistry to denote a certain derivative of sugar, should *not* be applied to the new substance, but that a new name should be devised. Consequently, there will be no other choice left but to comply with the notion of the proprietors and to continue to call it *saccharin*.

According to the German patent specifications, the substance is manufactured in the following manner:

Toluol is sulphurized by treatment with ordinary concentrated oil of vitriol at a temperature not exceeding 100° C. The resulting toluol-sulpho-acids are converted first into calcium and then into sodium salts. The latter are mixed with phosphorus trichloride and a current of chlorine gas conducted over the mixture which is constantly stirred. When the decomposition is completed, the resulting oxychloride of phosphorus is distilled off, and the mixture of the residuary chlorides strongly cooled. Para-toluol-sulpho-chloride crystallizes out, while the ortho-chloride remains liquid and is separated by centrifugal machines, etc. The ortho-chloride is now converted into ortho-toluol-sulphamide by passing over it a current of dry ammonia or by treating it with ammonium carbonate. Any chloride of ammonium formed at the same time is removed by washing with water. The washed ortho-toluol-sulphamide is now oxidized by being brought in contact with a dilute solution of potassium permanganate, and in proportion as alkali or alkali carbonate is separated, they are neutralized by the careful addition of acid. This causes the conversion of the amide into benzo-sulphimide and benzo-sulphaminic acid, which unites with the potassium of the permanganate. Finally, on addition of acid to the solution, crystals of the benzo-sulphimide or "anhydro-ortho-benzo-sulphaminic acid," or "*saccharin*" are separated.

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* Enumeração das Substancias Brazileiras que podem promover a catarze. . . . por A. L. P. da Silva Manso. 8vo. Rio Janeiro, 1836, pp. 52.

† That is in general, any hydrocarbons of illuminating power.

No. 1,889.—**Distinction Between Genuine and Imitation Brandy** (E. A. W.).

A very poor imitation of brandy may indeed, under certain circumstances, be discoverable by chemical tests. The latter, however, are, as a rule, unable to distinguish between a moderately good artificial brandy and the genuine article. It has been stated that the genuine has an acid reaction, which was absent in the artificial. But the latter is usually acid too. Again it was said that the former turns black with ferric chloride, while the latter does not. This, of course, depends on the receptacle the brandy has been kept in. As natural brandy is never considered good before it is at least three years old, it has plenty of chance to extract tannin from the cask it is kept in. Artificial brandy is usually thrown on the market sooner, and to impart to it the astringency which it would have acquired in the cask, some tincture of oak bark or other allied preparation is usually added to it. The best detective of imitation brandy is an experienced palate. But it is neither economical nor prudent for most people to try and bring their palate to such a pitch of education. They had better leave it to professional experts.

No. 1,890.—**Melinite** (Inquirer).

This is the name of a new explosive which has formed the subject of quite sensational reports respecting the preparations for war said to be made by various European governments. In fact, the article *melinite* is claimed to be an explosive exclusively owned by or known to the French. We are not aware what the exact composition of the explosive is, but from several foreign papers we learn that *ether* and *picric acid* form its principal components. In fact, the French Government is reported to make very large purchases of both of these articles in Germany itself, the monthly orders amounting to not less than 20,000 kilos (about 200 tons) of picric acid alone.

Some other European governments have also laid in supplies of certain explosives partly composed of picric acid. This sudden increased demand for picric acid has been the cause of the sharp advance in carbolic acid which has commenced towards the beginning of the present year.

No. 1,891.—**Estimation of Fatty Acids in Soap** ("Active").

We have several times given methods for estimating fatty acids in soaps. At the present time we shall give a new process, recently published by Dr. R. Bauer (*Journ. f. prakt. Chem.*, 35, 88), which is said to accomplish the object in the most expeditious and accurate manner.

Select two watch-glasses, a larger and smaller, place into the former a thin layer of fine glass pearls and upon this place the smaller glass, the layer of pearls answering the purpose of a sand-bath. Weigh the two glasses together. The smaller glass serves to receive the fatty acid. About 5 Gm. of the soap are placed into a flask of about 150 C.c. capacity, concentrated *glycerin* is poured on so as to cover it, and when the soap has become dissolved on heating, about 100 C.c. of alcohol are added. The *clear* solution is then titrated with hydrochloric acid, to determine the amount of alkali. An excess of acid is next added to separate the fatty acids, the latter are removed by means of a pipette with fine point, and transferred to the upper watch-glass. That portion of the fatty acid which cannot well be removed with the pipette is brought into solution by means of petroleum ether or benzin and strong agitation, and the resulting solution transferred by the pipette as before. This is continued until the watch-glass, after drying, is no longer found to increase in weight.

No. 1,892.—**Absolutely Pure Sulphate of Quinine** (M.).

Any commercial sulphate of quinine which responds to the requirements of the U. S. Pharmacopœia may be considered as sufficiently pure for all practical purposes. To separate from it every trace of other cinchona alkaloids would be a labor of supererogation, as the therapeutic activity of the salt is not affected in the least by the small percentage of other alkaloids present.

Nevertheless, an absolutely pure sulphate of quinine is a desirable article to have when there is special occasion to use it. It is made by several manufacturers, for instance C. Zimmer, of Frankfort-on-the-Main, but it must be asked for as such, and, of course, a somewhat higher price must be paid for it. It is in hard, heavy crystalline needles. Recently it has been stated, however, that a *pure* sulphate of quinine may also crystallize in the light, feathery form of the ordinary commercial sulphate (L. Schäfer in *Arch. d. Pharm.*, 1886, 848); but whether this is really the case with the *absolutely* pure salt seems doubtful.

No. 1,893.—**Pulv. Hdg.** (Pennsylvania).

"How would you compound this prescription, and what is Pulv. Hdg.?

"℞ Pulv. Hdg., gr. xxiv.; quinia sulph. gr. xvi., in 8 powders. Dose: one every 4 hours.

The abbreviation conveys no meaning probably to any one not familiar with the private formulas of the writer of it.

No. 1,894.—**Troublesome Prescription** (supplement to query 1,841, in our January number, page 10).

We have received a communication from a subscriber in Mississippi, in reference to the prescription containing:

Sodii Bicarb.............................. ʒ 5
Spir. Menth. Pip.............................fl. ℥ iss.
Tr. Capsici...................................fl. ℥ ij.
Spir. Frumenti..........................ad fl. ℥ iv.

He thinks that the red color is due to the fact that the sodium salt is insoluble in the spirits, and is colored red by the tincture of capsicum as well as by the coloring-matter of the whiskey.

In reply, we would say that we have prepared the mixture ourselves, with materials of good quality and known purity, and have not obtained the alleged result. The bottle now contains a pale, buff-colored sediment (the sodium salt) and a clear, brownish-yellow liquid.

No. 1,895.—**Liquefied Carbonic Acid Gas** (Dr. X.).

This may be obtained from O. Brunler, 837 Broadway.

No. 1,896.—**Pharmacy Law in Alabama** (A. E. W.).

There is yet no law in Alabama regulating the practice of pharmacy. The preliminary steps have been taken to secure one, and a draft for a law was reported at the annual meeting of the Alabama Pharmaceutical Association, on the 11th of May last, a copy of which can be had of Mr. P. C. Candidus, the Secretary, of Mobile.

No. 1,897.—**Unofficial Formularies** (E. W.).

"There are many pharmaceutical preparations prescribed by doctors, such as syrups, elixirs, etc., which are not contained in the pharmacopœia or the dispensatories. Can you recommend to me one of the most useful books for this purpose?"

There are many works which partly answer the purpose of our correspondent, but no one of them can be considered as comprehensive. To have anything like a complete set of unofficinal formulas is not practicable. The American Pharmaceutical Association has a work in course of preparation which will contain formulas for the articles most commonly called for; meanwhile we will endeavor to furnish subscribers with any particular one.

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**Freezing Mixture.**—A liquid invented by Raoul Pictet, of Geneva, Switzerland, for use as a disinfectant, answers well as a freezing mixture for hardening microscope specimens. Sulphur dioxide and carbon dioxide, having been mixed and cooled, are compressed until they are liquid and stored in siphons. When liberated, they rapidly evaporate with great reduction of temperature. By this means mercury may be frozen, and animal or vegetable tissues rendered solid in a few seconds. It is as easily managed and more effective than ether, the odor being the principal objection.—*West. Drugg.*

**Berberis Alkaloids,** according to E. Schmidt, have the following properties: *Berberine* forms with chloroform stable compounds until heated to 100° C., treated with HCl or dilute alkaline solutions; when the chloroform is set free. It combines, also, with hydrogen sulphide, forming brown, glistening, needle-shaped crystals, differing in composition from similar combinations with strychnine and brucine. *Hydrastine* is easily produced in form of crystals the size of a walnut from its solution in acetic ether. *Oxyacanthine* is thought to be identical with the alkaloid recently derived from *Berberis Aquifolium.*

**Sal Alembroth** or ammonio-mercuric chloride, the basis of "Lister's solution" (containing 1%) used by some in the preparation of antiseptic dressings, is a double salt having the formula $NH_4ClHgCl_2$. It is prepared by subliming a mixture of mercuric and ammonium chloride in molecular proportions, or the solution may be made by dissolving 21 grains of the latter and 100 grains of the former in 26⅝ fl. ℥ (12,100 grains) of water, adding ¼ grain of aniline blue. The latter is used on account of its property of becoming red in presence of alkaline discharges.

**Fluid Extract of Ergot.**—E. C. Federer, of Detroit, Mich., investigated fluid preparations of ergot with a view to determining the possibility of improving upon the pharmacopœial preparation, and concludes that the one process, of seven which were tried, which gave best results was the pharmacopœial without abstraction of the oil; that glycerin alone, with water, or a small per cent of alcohol is of no benefit so far as keeping qualities are concerned, and that to free ergot from fat is not an advantage.

**Pill-Coating.**—A. Simon, of Paris (*Rép. de Pharm.*), investigated the alleged influence of Tolu balsam in interfering with the absorption of the active element of pills of protochloride of iron. Pills of 3 grs. of iodide of potassium were used in the experiments, and the urine was tested for the presence of iodine. Traces appeared in half an hour, and decided evidences in 40 minutes. Pills coated with cocoa butter gave results only about ten minutes sooner.

# FORMULAS.

## SELECTIONS FROM THE HOSPITAL FORMULARY

OF THE DEPARTMENT OF PUBLIC CHARITIES AND CORRECTION OF THE CITY OF NEW YORK.

(Continued from page 39.)

### VII. OINTMENTS.

218. *Petrolatum Acidi Borici. “Boric Ointment.”*

| | |
|---|---|
| ℞ Acidi Borici, pulv | part. 1 |
| Petrolati | part. 6 |

Melt about 1 part of the petrolatum at a very gentle heat, and triturate with it the boric acid, which should be in very fine powder, so that a perfectly homogeneous mass is produced. Then incorporate the remainder of the petrolatum.

219. *Petrolatum Cocainæ.*

| | |
|---|---|
| ℞ Cocainæ Hydrochloratis | gr. 2 |
| Petrolati | ℈2 |

Mix. To be applied to the conjunctiva every hour, in recent burns or injuries of the eye. (*Dr. W. F. Mittendorf.*)

220. *Petrolatum Hydrargyri Ammoniati (Bureau O. D. P.).*

| | |
|---|---|
| ℞ Hydrargyri Ammoniati | gr. 40 |
| Petrolati | ʒ 1 |

Mix.

221. *Petrolatum Hydrargyri et Plumbi (Bureau O. D. P.).*

| | |
|---|---|
| ℞ Hydrarg. Oxidi Rubri | gr. 2 |
| Liquor. Plumbi Subacet. | ♏ 7 |
| Petrolati | gr. 120 |

Mix. To be applied, at bed time, to edge of eyelids, in blepharadenitis. (*Dr. F. W. Mittendorf.*)

222. *Petrolatum Hydrargyri Oxidi Rubri (Bureau O. D. P.).*

| | |
|---|---|
| ℞ Hydrarg. Oxidi Rubri | gr. 60 |
| Petrolati | ʒ 1 |

Mix intimately, taking care that the ointment is absolutely free from gritty particles.

223. *Petrolatum Iodoformi et Atropinæ (Bureau O. D. P.).*

| | |
|---|---|
| ℞ Iodoformi | gr. 30 |
| Atropinæ Sulphatis | gr. 1 |
| Petrolati | ʒ ½ |

Mix. To be applied to the conjunctiva every evening, in chronic phlyctenular ulcers. (*Dr. F. W. Mittendorf.*)

224. *Petrolatum Physostigminæ. Unguentum Eserinæ.*

| | |
|---|---|
| ℞ Physostigminæ (*vel* Eserinæ) Salicylatis | gr. 2 |
| Petrolati | ʒ ½ |

Mix. To be applied to the eye every four hours, in ulcers of cornea. (*Dr. W. F. Mittendorf.*)

225. *Petrolatum Zinci Salicylicum. “Salicylic Zinc Ointment.”*

| | |
|---|---|
| ℞ Acidi Salicylici | gr. 15 |
| Zinci Oxidi, | |
| Amyli pulv | āā ʒ 2½ |
| Petrolati | ℥ 1 |

Mix.

226. *Unguentum Antihæmorrhoidale. Pile Ointment.*

| | |
|---|---|
| ℞ Ceræ Flavæ | part. 4 |
| Resinæ | “ 2 |
| Adipis | “ 6 |
| Olei Sassafras | “ 1 |

Melt the wax, resin and lard together at a gentle heat, allow it to cool, and, before it has solidified, incorporate with it the oil of sassafras.

227. *Unguentum Calaminæ. Turner's Cerate.*

| | |
|---|---|
| ℞ Camphoræ Præparatæ | part. 1 |
| Unguenti (*vel* Petrolati) | “ 1 |

Mix them.

228. *Unguentum Camphoræ.*

| | |
|---|---|
| ℞ Camphoræ | parts 2 |
| Ceræ Albæ | “ 1 |
| Adipis | “ 6 |

Melt the white wax and lard at a gentle heat. Then add the camphor, and stir until cold.

229. *Unguentum Chrysarobini (Bureau O. D. P.).*

| | |
|---|---|
| ℞ Chrysarobini | gr. 50 |
| Unguenti (*vel* Petrolati) | gr. 500 |

Mix.

230. *Unguentum Fuscum (Char. Hosp.). Brown Ointment.*

| | |
|---|---|
| ℞ Argenti Nitratis | gr. 80 |
| Ext. Stramonii, | |
| Ext. Belladonnæ. | āā gr. 480 |
| Ung. Hydrarg. Ox. Rub., | |
| Cerati Plumbi Subacet. | āā gr. 30 |
| Bals. Peruviani | q. s. ad ℥ 16 |

Mix. To be applied to indolent ulcers.

*Note.*—The above mixture is chemically incompatible, and is known to be so by the physicians using it, but is reported to give satisfactory results.

231. *Unguentum Hydrargyri Oxidi Rubri Compositum (Bureau O. D. P.).*

| | |
|---|---|
| ℞ Ung. Hydrarg. Ox. Rub. (U. S. 10%), | |
| Ung. Zinci Oxidi, | |
| Ung. Acidi Carbolici. | āā part. æq. |

(*Dr. G. H. Bosley.*)

232. *Unguentum Hydrargyri Oxidi Rubri cum Plumbo (Bureau O. D. P.).*

| | |
|---|---|
| ℞ Hydrarg. Oxidi Rubri, | |
| Plumbi Acetatis | āā gr. 8 |
| Unguenti | ℥ 1 |

Mix intimately.

233. *Unguentum Metallorum (Bureau O. D. P.).*

| | |
|---|---|
| ℞ Ung. Zinci Oxidi, | |
| Ung. Hydrarg. Nitratis, | |
| Cerati Plumbi Subacetatis, | āā part. æq. |

Mix. (*Dr. C. E. Lockwood.*)

234. *Unguentum Picis Alkalinum (Bureau O. D. P.).*

| | |
|---|---|
| ℞ Liquor. Picis Alkalini (No. 204) | gr. 60 |
| Unguenti | ℥ 1 |

Mix.

235. *Unguentum Picis Compositum.*

| | |
|---|---|
| ℞ Olei Picis Liquidæ | part. 4 |
| Cetacei | “ 6 |
| Ceræ Flavæ | “ 22 |
| Adipis | “ 32 |
| Olei Gossypii | “ 35 |
| Tinct. Benzoini | “ 2 |
| Zinci Oxidi | “ 3 |

Melt the lard, white wax, and spermaceti with the cotton-seed oil at a gentle heat. Then add the tincture of benzoin, and continue heating until all the alcohol has escaped. Next add the oil of tar, and finally, the oxide of zinc, incorporating the latter thoroughly, so that, on cooling, a homogeneous ointment may result.

236. *Unguentum Potassii et Stramonii (Bureau O. D. P.). “Unguentum White,” White's Ointment.*

| | |
|---|---|
| ℞ Potassii Iodidi | gr. 120 |
| Unguenti Stramonii | ℥ 1 |

Mix.

237. *Unguentum Sulphuris Compositum. Hebra's (or Wilkinson's) Ointment.*

| | |
|---|---|
| ℞ Calcii Carbonat. Præcip | part. 2 |
| Sulphuris Sublimati | “ 3 |
| Olei Cadini | “ 3 |
| Saponis Viridis | “ 6 |
| Adipis | “ 6 |

Melt the lard at a gentle heat. Then add the green soap and incorporate the other ingredients, stirring until the ointment is cold.

238. *Unguentum Zinci et Hydrargyri (Bureau O. D. P.).*

| | |
|---|---|
| ℞ Ung. Zinci Oxidi | ℥ 1 |
| Ung. Hydrarg. Nitratis | ʒ 1½ |
| Ung. Acidi Carbolici | ʒ 4 |

Mix.

### VII. PILLS.

PILL-EXCIPIENTS.—From the large number of pill-excipients which are in common use, or have been recommended, a few are quoted here as being perhaps the most suitable in general practice.

a. *For dark-colored Pills:*

Extract of Gentian.
Extract of Taraxacum.
Extract of Triticum Repens.

Pills containing no fibrous substances are apt to collapse or to run together. In such cases, powdered liquorice root, or gentian, or althæa, etc., etc., should be added.

b. *For light-colored or white Pills:*

| | |
|---|---|
| 1. Tragacanth, powd | gr. 60. |
| Glycerin | “ 180 |
| Water | “ 80 Mix. |

| | |
|---|---|
| 2. Acacia, powd. (or Dextrin) | gr. 90 |
| Glycerin | av. oz. 1 |
| Glucose (pure, colorless) | “ 4 |

Triturate the acacia with the glycerin, add the glucose and heat *gently*, until the acacia is dissolved.

| | |
|---|---|
| 3. Tragacanth, powd. | av. oz. 1 |
| Glycerin | “ 4 to 6 |

Mix. The proportion of glycerin may be varied according to the object or the season.

| | |
|---|---|
| 4. Tragacanth, powd. | av. oz. 1 |
| Acacia, powd | “ 1 |
| Starch, powd | “ 1 |
| Sugar, powd | “ 8 |

Mix. Use a mixture of equal volumes of glycerin and water to make the mass.

c. *For Quinine Pills.*

| | |
|---|---|
| 1. Sulphate of Quinine | av. oz. 1 |
| Tartaric Acid | gr. 75 |

Make a mass, either with glycerin alone (about 54 grains); or with glycerin 2 parts, water 1 part (q. s.); or with water alone (16 to 20 min.)

2. Glycerite of Tragacanth. See above under b, 1.

| | |
|---|---|
| 3. Sulphate of Quinine | av. oz. 1 |
| Althæa, powd | gr. 60 |
| Tartaric Acid | gr. 40 |
| Glycerin | min. 10 |
| Diluted Sulphuric Acid | fl. dr. 1 |
| Glucose | q. s. |

The Glycerin may be omitted. The object of the acid is to reduce the size of the pills, in case this should be required.

### 239. *Pilulæ "Abernethy." Abernethy's Pills.*

℞ Massæ Hydrargyri.........gr. 10
Jalapæ pulv................gr. 20
Syr. Rhamni Cathart ... .. q. s.

Mix. Divide into 6 pills.

### 240. *Pilulæ Aconitinæ, "Duquesnel."*

℞ Aconitinæ Nitrat. "Duquesnel"...............gr. 1
Sacchari Lactis. ...........gr. 50
Glycyrrhizæ pulv......... gr. 50
Ext. Gentianæ..............q. s.

Triturate the nitrate of aconitine (see under No. 159) thoroughly with the sugar of milk, in a small mortar; gradually mix with it the powdered liquorice root, taking *great care* that the mixture is rendered perfectly uniform. Then mix it with the extract and make 200 pills.

Each pill contains $\frac{1}{200}$ grain of nitrate of aconitine.

### 241. *Pilulæ Aloes Compositæ.*

℞ Aloes.....................gr. 70
Olei Cari.................. ♏ 6
Extr. Gentianæ............q. s.

Mix. Divide into 20 pills.

### 242. *Pilulæ Aloes et Ferri.*

℞ Aloes,
Ferri Sulphatis Exsicc.,
Pulveris Aromatici......āā gr. 60
Strychninæ Acetat.........gr. 2
Confect. Rosæ..............q. s.

Mix. Divide into 60 pills.

### 243. *Pilulæ Aloes, Ferri et Taraxaci (Bureau O. D. P.).*

℞ Aloes.....................gr. 60
Ferri Sulphatis Exsicc.....gr. 120
Ext. Taraxaci......... ...q. s.

Mix. Divide into 60 pills.

### 244. *Pilulæ Anticatarrhoicæ (Hager's Catarrh Pills).*

℞ Cinchonidinæ Sulphat.,
Quinidinæ Sulphat.....āā gr. 75
Tragacanthæ pulv.........gr. 100
Althææ pulv.,
Gentianæ pulv... .. ..āā gr. 45
Santali Rubri pulv ........gr. 15
Glycerini,
Acidi Hydrochlorici .. āā gr. 110

Mix. Divide into 200 pills.

Dose. On feeling the least discomfort 5 pills are to be taken, and, if necessary, the dose is to be repeated in intervals of one hour.

### 245. *Pilulæ Antipodagricæ (White's Gout Pills).*

℞ Hydrarg. Chloridi Mitis,
Aloes,
Ipecacuanhæ pulv.,
Ext. Colchici Rad.......āā gr. 60

Mix. Divide into 60 pills.

### 246. *Pilulæ Antirheumaticæ.*

℞ Ext. Colocynth. Comp......gr. 45
Ext. Colchici Rad..........gr. 30
Ext. Hyoscyami,
Hydrarg. Chlor. Mitis...āā gr. 10

Mix. Divide into 30 pills.

*Note.*—*Ext. Colchici Radicis*, U. S. Ph. 1880, is equivalent to *Extractum Colchici Aceticum*, U. S. Ph. 1870.

### 247. *Pilulæ Aperientes.*

℞ Ext. Aloes.... ............gr. 20
Rhei pulv ...................gr. 10
Ext. Nucis Vomicæ...... .gr. 5
Ext. Taraxaci... ..........gr. 30

Mix. Divide into 20 pills. (*Dr. W. T. Lusk.*)

### 248. *Pilulæ Bellevue.*

℞ Massæ Hydrargyri.........gr. 10
Aloes........ ............gr. 20
Res. Podophylli............gr. 3
Ext. Hyoscyami............gr. 10
Ext. Taraxaci..............q. s.

Mix. Divide into 20 pills.

### 249. *Pilulæ Cambogiæ Compositæ (Miller's Pills).*

℞ Cambogiæ,
Scammonii,
Aloes,
Hydrarg. Chlor. Mitis,
Potassii Bitart ......... āā gr. 20
Ext. Taraxaci..............q. s.

Mix. Divide into 20 pills.

### 250. *Pilulæ Catharticæ*

("*Vegetable Cathartic Pills*").

℞ Ext. Colocynth. Comp......gr. 36
Res. Podophylli............gr. 9
Res. Leptandræ.... .......gr. 3
Jalapæ......................gr. 6
Aloes....... ..............gr. 12
Ext. Hyoscyami............gr. 6
Olei Menthæ Piper......... ♏ 5

Mix. Divide into 24 pills.

### 251. *Pilulæ Colchici.*

℞ Jalapæ pulv.,
Aloes,
Hydrarg. Chlor. Mitis,
Ext. Colchici Rad.......āā gr. 12
Ext. Nucis Vomicæ.........gr. 3

Mix. Divide into 12 pills. One three times daily, or every three hours, until griping is felt. (*Dr. A. L. Loomis.*)

### 252. *Pilula contra Sudorem* (*Bell. Hosp.*). ("*Anti-Sweat Pill*").

℞ Zinci Oxidi.................gr. 2
Ext. Belladonnæ Alcohol...gr. $\frac{1}{8}$
Ext. Hyoscyami ...........gr. $\frac{1}{4}$

Mix. One pill.

*Note.*—The oxide of zinc may be increased to 5 grains, the extr. of belladonna to one-fourth gr., and the ext. of hyoscyamus to 1 grain.

### 253. *Pilulæ Digitalis Compositæ.*

℞ Ipecac. pulv.,
Opii pulv................āā gr. 5
Quininæ Sulphatis,
Digitalis pulv............āā gr. 20
Ext. Gentianæ..............q. s.

Mix. Divide into 20 pills.

### 254. *Pilulæ Doveri.*

℞ Pulv. Ipecac et Opii........gr. 10
Ext. Gentianæ.......... ...q. s.

Mix. Divide into 3 pills.

### 255. *Pilula Duplex*] (*Char. Hosp.*). ("*Pil. Duo.*")

℞ Massæ Hydrargyri.... ......gr. 2
Ferri Sulphat. Exsicc........gr. 1

Mix. One pill.

### 256. *Pilulæ Elaterini Compositæ.*

℞ Tritur. Elaterini............gr. 12
Res. Podophylli.............gr. 6
Hydrarg. Chloridi Mitis....gr. 24

Mix. Divide into 12 pills.

### 257. *Pilulæ Ferri Carbonatis.*

*Blaud's* (*or Ferruginous*) *Pills.*

℞ Ferri Sulphatis.............gr. 240
Potassii Carbonatis........gr. 140
Sodii Boratis...............gr. 2
Althææ pulv.......... .. gr. 24
Tragacanthæ pulv.........gr. 8
Glycerini....................gtt. 3-4
Mucilag. Acaciæ.. .......gr. 130

Mix the sulphate of iron and carbonate of potassium, each previously reduced to powder, add the mucilage and triturate so that a green, pasty mass may be formed. Now add the borax and mix thoroughly. During the mixing, the mass will be felt to become harder, and after standing about fifteen minutes, it will have become almost pulverulent. Now, add the althæa and tragacanth and, with a few drops of glycerin, make a mass and divide it.

*Note.*—Coat the pills with an ethereal solution of balsam of Tolu as directed for *Pilulæ Ferri Iodidi* in the U. S. Ph.

### 258. *Pilulæ Ferri, Quininæ et Strychninæ.*

℞ Quininæ Sulphatis,
Ferri Reducti..........āā gr. 60
Strychninæ Acetatis........gr. 1
Ext. Gentianæ..............q. s.

Mix. Divide into 60 pills.

### 259. *Pilulæ Hydragogæ (Heim's Hydrogogue Pills).*

℞ Cambogiæ,
Digitalis pulv.,
Scillæ pulv.,
Antimon. Sulphurati....āā gr. 45
Ext. Taraxaci...............q. s.

Mix. Divide into 125 pills.

### 260. *Pilulæ Hyoscyami, Camphoræ et Morphinæ.*

℞ Ext. Hyoscyami............gr. 40
Camphoræ... .............gr. 24
Morphinæ Sulphatis........gr. 6

Mix. Divide into 24 pills.

### 261. *Pilulæ "Janeway" ("Janeway's Pills").*

℞ Res. Podophylli............gr. 10
Aloes.......................gr. 20
Ext. Belladonnæ,
Ext. Nucis Vomicæ... ..āā gr. 5

Mix. Divide into 20 pills.

### 262. *Pilulæ Laxativæ, Cole (Cole's Laxative Pills).*

℞ Ext. Colocynth. Comp......gr. 30
Hydrarg. Chloridi Mitis....gr. 10
Res. Podophylli......... ..gr. 1

Mix. Divide into 10 pills.

### 263. *Pilulæ Laxativæ, Crane (Crane's Laxative Pills).*

℞ Massæ Hydrargyri .... ....gr. 24
Aloes.......... ..........gr. 6
Olei Tiglii.................gtt. 1

Mix. Divide into 12 pills.

### 264. *Pilulæ Metallorum (Bureau O. D. P.).*

℞ Quininæ Sulphatis..........gr. 60
Ferri Reducti..............gr. 90
Acidi Arseniosi,
Strychninæ............āā gr. 3
Confect. Rosæ..............q. s.

Mix. Divide into 60 pills.

### 265. *Pilulæ Neuralgicæ, Brown-Séquard.*

℞ Ext. Hyoscyami,
Ext. Conii......... .....āā gr. 40
Ext. Ignatiæ,
Ext. Opii................āā gr. 30
Ext. Aconiti................gr. 20
Ext. Cannabis Ind....... ..gr. 15
Ext. Stramonii.... .. ....gr. 12
Ext. Belladonnæ............gr. 10

Mix. Divide into 60 pills.

*Note.*—See No. 162: *Injectio Brown-Séquard Hypodermica*

### 266. *Pilulæ Neuralgicæ, Gross.*

| | |
|---|---|
| ℞ Quininæ Sulphatis | gr. 120 |
| Morphinæ Sulphatis | gr. 3 |
| Strychninæ | gr. 2 |
| Acidi Arseniosi | gr. 3 |
| Ext. Aconiti | gr. 30 |

Mix. Divide into 60 pills.

### 267. *Pilulæ Olei Tiglii.*

| | |
|---|---|
| ℞ Olei Tiglii | gtt. 1 |
| Pulv. Tragacanth. Comp | gr. 2 |
| Saponis pulv | gr. 1 |

Mix. One pill.

*Note.*—The above excipient may be replaced by crumb of bread.

### 268. *Pilulæ Opii, Belladonnæ et Tiglii* ("*Lead Colic Pill*").

| | |
|---|---|
| ℞ Opii Pulv | gr. 1 |
| Olei Tiglii | gtt. 1 |
| Ext. Belladonnæ | gr. $\frac{1}{6}$ |

Mix. One pill. (*Dr. A. L. Loomis.*)

### 269. *Pilulæ Opii, Camphoræ et Belladonnæ.*

| | |
|---|---|
| ℞ Opii Pulv | gr. 12 |
| Camphoræ | gr. 12 |
| Ext. Belladonnæ | gr. 2 |

Mix. Divide into 12 pills.

### 270 *Pilulæ Opii et Camphoræ.*

| | |
|---|---|
| ℞ Opii Pulv | gr. 1 |
| Camphoræ | gr. 2 |

Mix. One pill.

### 271. *Pilulæ Opii et Tannini.*

| | |
|---|---|
| ℞ Opii Pulv | gr. 1 |
| Acidi Tannici | gr. 2 |

Mix. One pill.

### 272. *Pilulæ Plumbi et Opii.*

| | |
|---|---|
| ℞ Plumbi Acetatis | gr. 2 |
| Opii Pulv | gr. 1 |

Mix. One pill.

### 273. *Pilulæ Podophylli Compositæ.*

| | |
|---|---|
| ℞ Res. Podophylli | gr. 24 |
| Cambogiæ | gr. 60 |
| Aloes | gr. 240 |
| Hydrarg. Chlor. Mitis, | |
| Zingiberis pulv., | |
| Capsici pulv | āā gr. 120 |
| Ext. Taraxaci | q. s. |

Mix. Divide into 240 pills. (*Dr. E. G. Janeway*).

### 274. *Pilulæ Podophylli Squibb* (*Squibb's Laxative Pills*).

| | |
|---|---|
| ℞ Res. Podophylli | gr. 36 |
| Ext. Belladonnæ Alc | gr. 18 |
| Capsici pulv., | |
| Sacchari Lactis | āā gr. 144 |
| Acaciæ pulv | gr. 36 |
| Glycerini | ♏ 40 |
| Syrupi | q. s. |

Mix. Divide into 144 pills.

### 275. *Pilulæ Post Partum* (*Barker's "Post Partum Pills"*).

| | |
|---|---|
| ℞ Extr. Colocynth. Comp | gr. 20 |
| Ext. Aloes | gr. 15 |
| Ext. Hyoscyami | gr. 10 |
| Ext. Nucis Vomicæ | gr. 5 |
| Res. Podophylli, | |
| Ipecacuanhæ pulv | āā gr. 1 |

Mix. Divide into 12 pills. (*Dr. Fordyce Barker.*)

### 276. *Pilulæ pro Subinvolutione* (*Bell. Hosp.*).

| | |
|---|---|
| ℞ Ferri Reducti, | |
| Quininæ Sulphatis | āā gr. 48 |
| Ergotini Purificati | gr. 24 |
| Strychninæ Sulphatis | gr. $\frac{1}{2}$ |
| Ext. Gentianæ | q. s. |

Mix. Divide into 24 pills.

*Note.*—The proportions of reduced iron and sulphate of quinine are sometimes altered. "Ergotin" is a name applied, *not* to an active principle, but to a purified extract of ergot, in which a large proportion of the inert constituents has been removed by means of alcohol.

### 277. *Pilulæ Quatuor* (*Bureau O. D. P.*). (*Pilulæ Ferri et Quininæ Compositæ.*)

| | |
|---|---|
| ℞ Ferri Sulphatis, | |
| Quininæ Sulphatis, | |
| Aloes | āā gr. 20 |
| Ext. Nucis Vomicæ | gr. 5 |
| Ext. Gentianæ | q. s. |

Mix. Divide into 20 pills.

### 278. *Pilulæ Quininæ et Ferri.*

| | |
|---|---|
| ℞ Quininæ Sulphatis | gr. 40 |
| Ferri Sulphat. Exsicc | gr. 20 |
| Ext. Nucis Vomicæ | gr. 5 |

Mix. Divide into 20 pills.

### 279. *Pilulæ Quininæ et Piperinæ.*

| | |
|---|---|
| ℞ Quininæ Sulphatis | gr. 20 |
| Piperinæ | gr. 30 |
| Ext. Colocynth. Comp | gr. 20 |

Mix. Divide into 20 pills. (*Dr. A. S. Heath.*)

### 280. *Pilulæ Rhei et Aloes Compositæ* ("*Rag's Pills*").

| | |
|---|---|
| ℞ Rhei pulv., | |
| Aloes, | |
| Gentianæ pulv., | |
| Saponis pulv | āā gr. 20 |

Mix. Divide into 20 pills.

### 281. *Pilulæ "Segur"* (*Segur"s Pills.*)

| | |
|---|---|
| ℞ Aloes | gr. 60 |
| Ext. Colocynth. Comp., | |
| Ext. Hyoscyami | āā gr. 30 |
| Ext. Nucis Vomicæ | gr. 15 |

Mix. Divide into 30 pills.

### 282. *Pilulæ Townsend* (*Townsend's Pills*).

| | |
|---|---|
| ℞ Massæ Hydrargyri, | |
| Cambogiæ, | |
| Ext. Aloes, | |
| Zingiberis pulv | āā gr. 30 |
| Olei Menthæ Pip | ♏ 4 |
| Tinct. Aloes | q. s. |

Mix. Divide into 24 pills.

### 283. *Pilula Triplex.*

| | |
|---|---|
| ℞ Aloes, | |
| Scammonii, | |
| Massæ Hydrargyri | āā gr. 48 |
| Olei Tiglii | ♏ 2 |
| Olei Cari | ♏ 9 |
| Tinct. Aloes et Myrrhæ | ♏ 12 |

Mix. Divide into 40 pills. (*Dr. John W. Francis.*)

### 284. *Pilulæ "Walker"* (*Walker's Pills*).

| | |
|---|---|
| ℞ Ext. Nucis Vomicæ, | |
| Ext. Belladonnæ | āā gr. 5 |
| Ferri Sulphat. Exsicc., | |
| Ext. Aloes | āā gr. 10 |

Mix. Divide into 20 pills. (*Dr. H. F. Walker.*)

(To be continued.)

◆

**Cockroaches** may be driven away according to the *Süd-deutsche Ap. Zeit.*, by sprinkling about the place frequented by them, a mixture of

| | |
|---|---|
| Borax, powd | 2 parts. |
| Acetate of Lead, powd | 1 part. |
| Wheat Flour | 3 parts. |

**Saddler's Wax,** according to the *Wiener Drug. Zeit.*, consists of (1) wax, 4; rosin, 1—(2) wax, 10; rosin, 2; turpentine, 1—(3) white wax, 8; olive oil, 1; rosin, 6—(4) white wax, 24; rosin, 12; tallow, 4; olive oil, 1. Melt the ingredients, and stir until cool.

## BIBLIOGRAPHY.

THE NATIONAL DISPENSATORY. Containing the Natural History, Chemistry, Pharmacy, Actions and Uses of Medicines. Including those recognized in the Pharmacopœias of the United States, Great Britain, and Germany, with numerous references to the French Codex. By ALFRED STILLÉ, M.D., LL.D., etc., and JOHN M. MAISCH, Phar.D., etc. Fourth edition, revised and improved. With 311 illustrations. Philadelphia: Henry C. Lea's Son & Co., 1886, pp. 1781. Royal 8vo.

IN the absence of both space and time for reviewing a work which has so thoroughly established itself, and which we have so recently commented on, we quote from the preface to this edition the statements that the recent publication of the British Pharmacopœia has been followed by careful revision of the references in this publication. In the form of "Addenda," information is given concerning a considerable number of new remedies, these new portions being comprised in twenty-five pages.

POCKET MEDICAL FORMULARY, arranged Therapeutically by ALEXANDER HAZARD, M.D., and BERNARD GOLDBERG, M.D. Revised and enlarged by ABRAHAM S. GERHARD, A.M., M.D., etc. With an Appendix containing Formulas and Doses of Hypodermic Medication; a table of Eruptive Fevers; and Poisons, their Symptoms, Antidotes, and Treatment. Philadelphia, Pa., 1886.

THIS book is 3¼ by 6 inches, bound in morocco, with pocket and tuck. It has blank pages for additional formulas, is indexed on the margin, and containes 1,102 formulas, besides other matters enumerated in the title.

YEAR BOOK OF PHARMACY. Comprising Abstracts of Papers relating to Pharmacy, Chemistry, and Materia Medica, contributed to British and Foreign Journals, from July 1st, 1885, to June 30th, 1886, with the Transactions of the British Pharmaceutical Conference, at the XXIII. Annual Meeting, held at Birmingham, Sept., 1886. London: J. & A. Churchill, 1886, pp. 606. 8vo.

THIS volume of the Year Book is edited by Louis Siebold, F.I.C., F.C.S., and contains an unusually large number of abstracts of papers and other matters of interest to pharmacists.

THE PRINCIPLES OF PHARMACOGNOSY. An Introduction to the Study of the Crude Substances of the Vegetable Kingdom. By FRIED. FLÜCKIGER, Ph.D., etc., and ALEX. TSCHIRCH, Ph.D., etc. With 186 illust. Translated from the second . . . edition by FREDERICK B. POWER, Ph.D., Prof. of Mat. Med. and Pharm. in the University of Wisconsin. 8vo. New York, 1887.

THE wish we expressed, when noticing the German original of this important work (on page 236 of our vol. for 1885), that a competent person would undertake a translation of it, has been fulfilled. Prof. Power has accomplished the task in a most satisfactory manner, and has successfully overcome the many difficulties encountered during the translation. No one who has not himself tried his hand upon it can fairly realize the onus of the task of translating a work of this kind, in which proper English equivalents had often to be newly coined for new technical terms. We congratulate the authors and the translator upon the successful introduction of the work to the profession of all English-speaking countries. The publishers have done their share to make the volume worthy of the contents.

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## PHARMACOGNOSTICAL NOTES.

BY JOSEPH SCHRENK.

Valeriana.—In the pith of the rhizoma, there are quite frequently found several horizontal cross-partitions, which consist chiefly of very hard sclerenchyma cells. It is, therefore, quite difficult to prepare good thin sections for examination. The root-stock should be soaked for a day or two in a weak solution of ammonia, and then in a mixture of glycerin and alcohol. Even then very cautious manipulation is necessary, if we do not want to spoil our knives.[*] As the rootlets form a considerable portion of the bulk of this drug, it is perhaps worth while to know that they do not contain simply "a slender vascular cord,"[†] but a ring of fibro-vascular bundles surrounding a narrow pith.[‡]

Arnica montana, L., is not found in "Northwestern America,"[§] for the North American plant known by that name is *Arnica foliosa*, Nutt.[‖]

Serpentaria.—The morphological description of *Aristolochia Serpentaria*, L., contained in our pharmacopœia, needs some modification. The rhizoma is evidently a sympodium which consists of a number of joints, each being the result of one season's growth. At the end of every joint grows the stem which bears leaves and flowers. It falls off after having performed its functions, and leaves a small scar, so that there are no "stem-remnants." It is, therefore, not correct to say: "The rhizome . . . on the upper side with approximate, short stem-remnants." The following description suggests itself: "The rhizome . . . consisting of several short, curved joints, each with a scar at its upper, projecting end."

Aconitum Napellus, L., does not grow in "western North America."[¶] "Large quantities are imported and used in the United States, but none of our native species have been recognized by either pharmacopœia or dispensatory."[**]

The structure of the root of aconite is not correctly described in our pharmacopœia and in Maisch's "Materia Medica." The latter says (l. c.): "Nucleus sheath about seven-rayed." The *nucleus sheath* or endodermis of the aconite root is found quite close to the surface; it is nearly circular and consists of a single layer of tangentially elongated cells. It is the *cambium zone*, consisting of about eight rows of cells, which presents on the cross-section the appearance of an irregular star with from five to nine rays. The cambium line, of course, incloses the entire woody portion of the fibro-vascular bundles, not the pith only, as the Pharmacopœia might lead to believe by speaking of the "seven-rayed pith."

Rhamnus purshiana.—The bark contains numerous sclerenchyma cells of most irregular, angular shape, wedged together so as to form large, compact groups, which increase in size and number toward the surface. They cause the short fracture of the outer bark, while the inner is fibrous, the bast cells projecting in narrow, tangential bands. As Frangula has the bast bundles arranged in a similar way, but no sclerenchyma cells, the presence of the latter in "Cascara sagrada" is of diagnostic value.

Coca.—On the lower surface of the leaf we notice two curved lines, on both sides of the midrib, running from the pointed, lower end of the leaf to its apex. These lines form one of the most important characteristics of the drug; they are mentioned in the descriptions of various authors as "folds of the blade."

In *Pharmaceutische Rundschau* (April, 1885), Dr. T. F. Hanausek describes and illustrates the anatomical structure of the coca leaf, and quotes from his book[*] the following passage referring to this "tissue-fold." "Numerous, especially older, leaves have on each side of the midrib a fold which is prominent on the lower side and runs in a curve from base to apex. It has the appearance of a lateral rib and was originally considered as such. At some points lateral veins seem to originate from the fold."

A close examination will soon lead to the conclusion that the lines in question cannot be considered as "tissue-folds" or "folds of the blade." The surface view of the epidermis shows that the line is formed by a narrow band of tissue consisting of several rows of elongated, oblong cells which contrast very much with the polygonal cells of the epidermis bordering on the line. (The latter cells are extended into peculiar papillary projections,[†] Fig. 1, *p*. A cross-section through the line (Fig. 1) plainly demonstrates that the entire ridge is simply a sub-epidermal strand of *collenchyma cells*. There is no "fold" in the epidermis, nor in the spongy parenchyma or palisade layer, nor is there any connection between the line and the fibro-vascular system (the veins) of the leaf. There is little doubt that this band of collenchyma serves as an elastic stiffening of the blade.

Fig. 1.

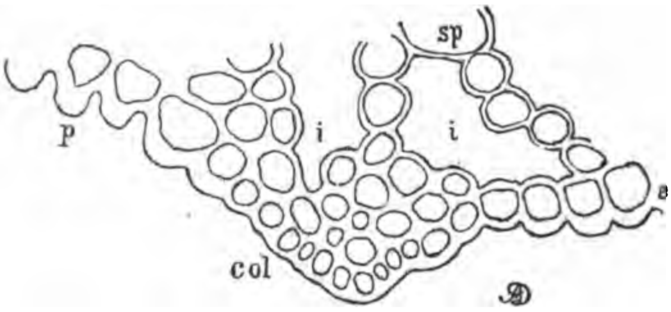
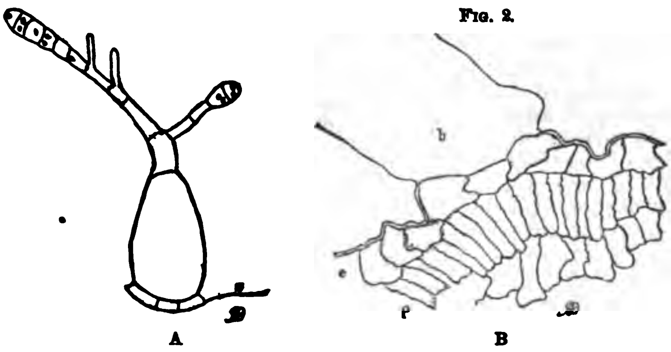


Fig. 2.



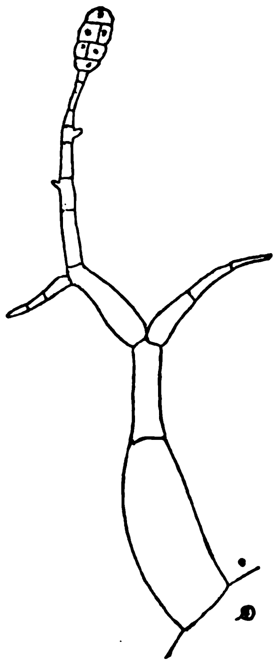


Fig. 1.—*Coca leaf*, cross-section through one of the two curved ridges on lower side of leaf; *e*, epidermis; *p*, papillary projections; *col*, collenchyma tissue; *sp*, spongy parenchyma; *i*, intercellular spaces; × 420.

Fig. 2.—Branched glandular hairs on epidermis, *e*, of *tobacco leaf*; A, on young leaf; C, on old leaf; × 180, reduced one-half; B, cross-section of leaf, showing epidermis cells, *e*, and palisade tissue, *p*, at base of branched glandular hairs, *h*, × 420, reduced one-half.

Tabacum.—While examining a small young leaf of tobacco, I found a very peculiar form of hairs which, to my knowledge, had not yet been described.* I was inclined, therefore, to think that these hairs occurred on young leaves only, and for that reason had not yet been detected. But the very first few scraps of tobacco stems and leaves from a cigar-factory demonstrated to me that these curious hairs are found on full-grown leaves also, and that, consequently, they might be considered of some diagnostic interest. It requires, however, considerable patience to hunt them up, and in some cases I did not find any.

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[*] This note was caused by the following passage in the excellent work of Dr. W. Marmé, "Pharmacognosie des Pflanzen- und Thierreichs" (1886), p. 98: "After maceration in dilute alcohol, the drug can be cut without any difficulty."

[†] Maisch, "Organic Mat. Med.," p. 135.

[‡] Flückiger, "Pharmacognosie," etc., p. 430.

[§] Maisch, l. c., p. 135; also Flückiger, l. c., p. 434.

[‖] Gray, "Synopt. Fl. of N. A." (1884), p. 382.

[¶] Maisch, l. c., p. 154.

[**] Lloyd's "Drugs and Medicines of N. A." vol. i., p. 216.

[*] "Die Nahrungs- und Genussmittel aus dem Pflanzenreiche," 1884.

[†] Hanausek, l. c.

They are much longer than ordinary hairs, on old leaves sometimes more than twice as long (.12 mm. and longer). The large, much inflated basal cell of such a hair rests on a number of cells raised slightly above the level of the epidermis, Fig. 2, A and B. The other cells are much narrower; some of them have lateral extensions, as shown in Fig. 2, A and C. In each hair one or two of these extensions develop into several-celled branches, which have at their end, either a glandular head, Fig. 2, A, or a simple cell tapering to a point, Fig. 2, C. The end of the axis is always occupied by a several-celled gland. The glands have the same contents as those on unbranched hairs, viz., some yellowish oil and calcium oxalate crystals.

March 4th, 1887.

### On Maclagan's Test of the Purity of Cocaine.

Referring to the new test for the purity of cocaine by Mr. Henry Maclagan, of New York, published on page 22 of our January number, the editor of the *Chemist and Druggist* makes the following statement:

"We have made some experiment with the test, using (1) an English-made crystalline hydrochlorate, (2) a foreign hydrochlorate in granular crystals, and (3) a sample of crude cocaine imported from South America, which was known to contain amorphous alkaloid. Solutions of each were made of a strength equal to 1 grain in 1 oz. of distilled water. On the addition of a single drop of liquor ammoniæ to the solution of No. 1 and stirring vigorously with a glass rod, there was a copious separation of crystals in a few seconds, and the edges of the test-glass where the rod had rubbed were thickly marked with white streaks. The crystals subsided in a few minutes, leaving a clear supernatant liquor. With the solution of No. 2 the separation was not so rapid, nor were the streaks so prominent, but in the course of a quarter of an hour the precipitate assumed a distinctly crystalline appearance, and with the liquor was in no wise distinguishable from No. 1.

The solution of No. 3, on the other hand, gave neither streaks nor precipitate in the course of twelve hours, the solution assuming only a faint opalescent appearance, which disappeared at the end of twenty-four hours. A further proof of the correctness of Mr. Maclagan's observations was obtained in the following manner: A tenth of a grain of crude cocaine was added to the solution of 1 grain of No. 1 salt in 1 oz. of water. A single drop of ammonia solution added to this mixture produced turbity on stirring, but there were no streaks on the edge of the test-glass; the precipitate on settling was found to be non-crystalline, after two hours the supernatant liquor was still opalescent, and at the end of twelve hours the precipitate still retained its white pulverulent character, and the liquor was distinctly opalescent. No streaks had appeared. As in the case of No. 3 salt, the solution had become clear at the end of twenty-four hours, although the odor of ammonia was distinctly perceptible. It is evident, therefore, that in this test pharmacists have a ready means of assuring themselves of the purity of cocaine salts. The test is best performed in a 1 oz. conical measure-glass, which allows quick observations of the formation of streaks and of the nature of the precipitate. Judging from the experiments which we have made, the results corroborate Dr. Paul's observation that only the crystalline hydrochlorate should be used for medicinal purposes, and the distinctive and rapid response to the test of the English-made hydrochlorate in large crystals was very striking."

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**Inefficiency of Percolation.**—J. W. Colcord expresses the belief that a large proportion of the fluid extracts and tinctures of the Pharmacopœia do not represent the complete strength of the drugs. The direction to macerate when the liquid begins to drop is wrong in theory and misleading in practice. Experiments upon the solubility of sugar are quoted as evidence of the correctness of this statement, and an arrangement of diaphragms is described, by means of which the author seeks to prevent the passage of the menstruum along the walls of the percolator without properly affecting the main body of the drug.

**Chloroform-Water,** as a hæmostatic, is finding more general employment, with satisfactory results.

[Original Communication.]

## "THEORETICAL AND PRACTICAL PHARMACY."*

BY PROF. J. U. LLOYD, OF CINCINNATI, OHIO.

In presuming to offer this communication, I realize that perhaps I am on uncertain ground. Not that there exists in my mind a question as to the future of pharmacy, but because I doubt if pharmacists generally are yet ready to admit as much as I will. It might, therefore, be better for me to remain silent, and yet it may be that I am now as well prepared to stand the criticisms that may follow as others. Perhaps I may be in a better condition than some of my friends who may possibly view these matters as I do; and some one must make a start. If I err in my conclusions, it is not without due consideration of the subject, my views having certainly been framed during an active life amid, and an active experience in, some sections of the practice and study of pharmacy. That my present stand is different from the one I occupied some years ago is evident, but Pope has written: "A man should never be ashamed to own he has been in the wrong, which is but saying, in other words, that he is wiser to-day than he was yesterday," and this ground is still open to us.

In this connection, I will candidly state that I believe the present tendency is towards the casting of a stigma on what is called theoretical pharmacy; which will perhaps unconsciously create a distinction between reason and operation; lead the student to infer that attention is not conducive to the practice of pharmacy; to draw a dividing-line where there should be no distinction; to create an artificial prejudice against one side of a beautiful study without which the other side is drudgery; to cherish a hallucination; for I firmly believe that the brightness we may find in our practice is largely dependent upon the theories of those who have worked them out and who will continue still to theorize.

In my opinion, there should not be a distinction between the theoretical and practical pharmacist. In allied professions and other departments of science, the man with the most systematic knowledge of facts, and who is best versed in their application, is the man to give us the clearest theories, and we look to such authorities for statements regarding the future. Should we, then, further a tendency, unconscious though it be, to create two classes of pharmacists—one to be known as a vague, impractical theorist; the other to be a plodding, mechanical drudge? That my cup has been filled with drudgery is evident to all who know me; but that in the midst of the monotony I have unconsciously cheered myself by the other side is now self-evident. I confess that I once studied to perfect myself in the so-called practical part of pharmacy and did not realize that, to do so, I must continually devote the greater share of my attention to the so-called theoretic pharmacy. They go hand-in-hand.

In my opinion, we should encourage theoretical pharmacy. We should draw a lesson from the advantages that have accrued in other directions by attention to theories. The return is not always as we think it will be.

When Columbus thought to find a more direct course to the Indies, it was a dream, a failure, as far as his theory was concerned; but this failure to support his views opened up a new world, besides which the hoped for treasures of the Indies are not to be compared. He failed in his purpose; his labors were not lost, however.

The various theories that have been propounded from time to time concerning the origin of matter or nature of force are still theories, and students are perhaps as far from an accepted conclusion as during or even before the day of Avagadez, but the literary riches that have resulted from these unsatisfactory dreamings cannot be overestimated. The returns to pure science and the comforts of every-day life that have accrued through the labors of men who were thereby led to more practical investigations by means of such vaporizing beginnings, from the love of the study of an ethereal literature, can never be known.

It is not alone the so-called practical return (stomach-stuffing and garment-wearing) that benefits the human race. A theory may not return directly a dollar to the author or any other person, and still be of incalculable value to humanity. Do I overstep the line of propriety when I class a beautifully expressed theory, perhaps unsupported by many facts, with the literary productions of the poets and others who also draw upon their imagination and paint their thoughts on paper? Shall we greedily drink in the mind expressions of a visionary man—a genius who writes a beautiful tale of fiction, and then crush the advances of another, whose prosaic branch of Nature's laboratory has led him to frame a theory (story perhaps) that is not all true, and that may not be altogether supported by a subsequent arrangement of facts?

The reading of such a production may give as much real enjoyment to many persons as a standard poem, perhaps more. The beauty of science is perhaps in great part the anticipation; do we not find that, in every other direction connected with a study of Nature, most enticing theory-paintings are presented, as well as recorded facts?

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* Dr. A. F. W. Schimper, in his book: "Anleitung zur mikrosk. Untersuchung der Nahrungs- und Genussmittel," 1886, describes and figures three kinds of hairs: 1st, long hairs, each bearing a gland of a single row of a few cells; 2d, very short hairs with relatively large, several-celled glands supported by a one-celled stem; 3d, conical, pointed hairs of one row of cells.

* Read before the New York College of Pharmacy, March 17th, 1887.

In this connection, I am led to believe that a money return may be the lowest of motives for judging of the value of a literary production; indeed, indirectly, do we not admit that fact when we give money for mind enjoyment of any kind?

Is it not true that we often spend money that we can scarcely afford, to experience a short relief from care and anxiety? And to the writer a peculiar pleasure is derived from the theories of specialists who attempt to arrange the perhaps unorganizable phenomena of Nature.

We may never learn the mystery of the origin of comets; certainly, the study of these erratic visitors returns but little, if anything, from a monetary view, and yet we find some men are willing to devote their lives, and others an abundance of gold, to their observation, and such theorists are not ridiculed for stepping into the domain of fancy. Who is not charmed by the story of the possible wanderings of these mysterious members of a universe; who is not attracted by theories regarding their peculiar manœuvres? The theories of these men commence in space and end in space, as they attempt to describe a floating visitor, supposed by some to be more attenuated than expanded hydrogen. They are literary stories, perhaps, like other mind productions, but to many they are of greater beauty than a standard poem, and men are not treated to sarcasm for evolving them. Can a theory in pharmacy be based upon a more attenuated foundation?

The history of alchemy is a beautiful study, and the results of the alchemist's labors are now commercial treasures, although his theories were not demonstrated. The possibility of the transmutations of the metals, however, is perhaps not altogether unreachable; who would not prefer to say that an element had never been decomposed, rather than that it cannot be decomposed? Who of our modern chemists will boldly disclaim the possibility of that feature of the aged alchemist's dream? In this connection, I can almost believe that the cycle of time may bring us once more to the ground the old alchemist occupied, and that modern science may lighten up the path of the future chemist with the golden dream of other days.

Take the folk lore and legends of those who lived in former times and left those disconnected fragments of a curious literature, what practical benefits to mankind accrue from their consideration? What return to humanity do we find in the theories expounded by scholars regarding their origin and meanings? Perhaps none. Yet who of us is not delighted with these weird tidbits that connect us with ancient times, and who is so wrapped in facts (moneyed facts) as to grudge to these legends an occasional passing hour? From the alchemist's dream to Hans Andersen's beautiful fairy tales, the expressions alike interest and instruct us.

It may seem that subjects such as I have named are not connected with pharmacy, and I do not presume to imply that our study can produce anything weird, or that will be a beautiful part of general literature or become of public interest. But, perhaps it would be an upward step if students of pharmacy (like students of all other sciences have done) should open up their literature to a more free statement of uncertainties and theories. Perhaps we would receive new life and vigor if the *possibilities* of pharmacy were occasionally presented in as attractive a form as are the possibilities of other and even connected sciences or professional topics.

In the monotony of my own life in a laboratory, I have craved in connection with my studies for such theories as we find in connected branches; this I admit. Have not pharmacists enough facts now under control to pass beyond the known and perhaps not really encroach upon the unknowable? Will any pharmacist assert that all has been learned and that his art is perfect? If not, by what reasons are we denied the right to theorize; an inheritance that belongs to students in collateral sciences? Is it true that in a study involving so much attention (that, as I believe, is still in its rudiments) all is prose and must ever remain a bleak field, a rule of thumb monotony, an empirical wandering and stumbling, excepting as we call upon the theories of connected sciences?

Are we not united, on the one hand, with the chemist and his theories regarding matter and force, and upon the other with the physician and his theories regarding disease expression and vitalized morbid matter? Do we not interest ourselves in each direction, and are we not continually meeting with problems connected with our life-work as interesting to us as any of these are to others? Is there no field for a pharmacist other than mechanical detail and shop drudgery?

We are in the finite as they are; we bow before the Infinity as they do. We meet perplexities day by day that would serve as food for interesting papers, if recorded. Queries arise, they are lost because, perhaps, as a rule, we have learned to only speak of what we view as facts, and dare not presume to anticipate aloud.

I am perhaps not often given to such expressions as these; perhaps I have not time, perhaps a fear of ridicule, perhaps force of habit prevent it. Be that as it may, I feel that a vacancy exists in the study of pharmacy, I believe that others realize it, and I believe it unnecessary. I would like to read the thoughts of other men concerning their ideas of that great unknown to me in pharmaceutical manipulations. It would be a pleasure to learn the theories of some of my friends concerning problems in pharmacy that have from time to time presented themselves, but are not demonstrated. In a work where recreations are almost unknown, there is a desire to learn what others *think*.

Do not tell me that the end of pharmacy is the rolling of pills, mixing of powders, etc., for that is but the beginning; do not tell me there is nothing to learn beyond mechanical manipulations, and that there is no leaven for those who mix and triturate. Do not tell me that the study of pharmacy consists solely in learning what men have already written, and that we must be guided altogether by opinions of those who precede us. We honor and respect the pioneer, but we must not forget that as one man rests from his labor, others will carry the work along, and we must not forget that the passing years open up new avenues. When a man has given his life-long attention to a subject, and is nearly through with his labors, whether it be after the full allotted time of Scripture or because of a necessary crushing of work into a moderate number of years, should it be a matter of ridicule in pharmacy if he pen his theories of the possibilities as described from his study of facts? Is it improbable that individuals are working on lines of investigations that would benefit and interest us all if their ideas and views were expressed, but which will be altogether lost because these particular persons will die before attaining their goal? Would it not be better if the lines of thought of these workers could be recorded; would not our coming students have more interesting problems? Would not the beginner have a greater incentive to push his studies, if interested in a series of problems on the future of pharmacy? Would it be out of place for our writers to occasionally enlighten the pages of a pharmaceutical journal with an argument regarding the possibilities in certain sections of pharmaceutical investigation? Have not all workers in pharmacy problems to solve? Do they not die in the midst of anticipations? Are not these chains of thought then lost beyond a few disconnected facts that have been recorded? Do pharmacists not work by rule, have they no hopes, no anticipations?

Are we doing our duty by the students of our College of Pharmacy when we fail to lead them to become interested in the future of pharmacy for, in part, its literary return? Are we not neglecting our classes unintentionally, when we permit them to view our profession as a "trade" in which money only can be made? If it is true that the profession of pharmacy is now underrated, am I far from right when I assign as one reason the fact that, by some influence, we are known simply as tradesmen? The botanist with his theories of plant relationship, the physician with his theories of disease and drug action, the geologist with his theories regarding the world's history, the chemist with his theories regarding matter and force, the astronomer with his theories regarding the universe, are but examples of the beauties of thought we have in every study and in every section of natural history, excepting perhaps pharmacy. Am I not right in saying that it is the prevalent idea with many that in pharmacy the highest point of excellence lies in learning how to sell substances that the populace know but little about, and, as they believe, at extraordinary prices? I repeat it, this is not in my opinion the object of earnest pharmacy.

I do not pretend now to offer a remedy. I simply say that if we occupy a position beside other professional men who do less studying than we do, it is unnecessary, in my opinion, and I have heard with interest the opinions advanced by respected members of our profession who lament the seeming fact that pharmacy is degenerating into a rule-of-thumb trade. I do not propose to attempt to controvert the fact that there is a hitch somewhere. I only say that to me there appears to be a vacancy in the direction of systematic theories concerning a higher pharmacy.

### Pulsatilla in Inflamed Testicle.

DR. GERARD SMITH writes to the *British Med. Jour.*: "Having witnessed the striking curative action of pulsatilla in acute orchitis and epididymitis, I should like to persuade others to follow Dr. Brunton's advice, and give this drug in inflammatory states of the testicle, epididymis, and spermatic cord. To have it in our power to subdue promptly the intense suffering of such cases, is a great blessing; and the relief is so rapid that it is even unnecessary to employ morphine to subdue the pain, whilst the swelling and heat subside more rapidly than under any other drug."

[There is no doubt of the power of pulsatilla to do very great good when used as above mentioned, but far from the recommendation having originated with Dr. Brunton, it has been a recognized plan of treatment among homœopathic physicians for a great many years. It was the subject of a paper by a well-known New York physician (published, we believe, in the *Medical Record*) long ago, and this writer had the fairness to credit homœopathic therapeutics with its origin.—ED. A. D.]

### Notes on Some of the Newer Chemicals.*

*Chromic Acid* is now obtainable absolutely free from sulphuric acid. In commerce there were heretofore two kinds of chromic acid available, one, which was usually designated as "pharmacopœial," but which contained usually up to 7 per cent of sulphuric acid, and an acid for technical purposes which contained sometimes as much as 24 per cent. But it is this latter variety which corresponds most closely with the description of the pharmacopœia, beginning with the words: "scarlet, shining, deliquescent crystals." Hence it is not to be wondered at that this impure acid was often used officinally. Yet for surgical purposes, particularly for application to the fauces and uterus, such an acid is altogether inadmissible. On the contrary, a non-deliquescent substance is required here. Merck has succeeded in producing chromic acid which is absolutely free from sulphuric. It forms small, red, *dry* crystals, easily soluble in water or in alcohol, and only very slowly deliquescent in dry air.

*Subiodide of Bismuth*, or oxyiodide of bismuth, in form of a brownish-red, amorphous, very fine powder, without odor or taste, of a neutral reaction, and insoluble in water, alcohol, or ether. This has recently been introduced as an excellent antiseptic for external use, particularly in suppurating wounds. It has also been used with good success in gonorrhœa in form of injection (1 part mixed with 100 of water); also in form of ointments (1 : 8) in ulcerations of the rectum, and internally in ulcer of the stomach, typhus fever, etc., in doses of ¼ to ½ grain.

*Note by Ed. Am. Dr.*—Mr. Joseph W. England has recently published a paper in *The Am. Journ. Pharm.* on the use and preparation of this substance. In view of the great variability of the article as sold in the market, he examined different methods by which it may be prepared, and finally came to the conclusion that the following was the most satisfactory :

| | |
|---|---|
| Bismuth Subnitrate | 1,324 grains. |
| Nitric Acid | 3 fl. oz. |
| Hot Water | 12 " " |
| Potassium Iodide | 663 grains. |
| Hot water | 28 fl. oz. |

Dissolve the bismuth salt in the acid in a porcelain capsule with the aid of heat, and add 12 fl. oz. of boiling water in small portions at a time, stirring after each addition. Then pour the bismuth solution into the hot water in which the iodide has been dissolved, agitating well after each addition. Continue agitating until decomposition is complete. Filter at once. Wash the precipitate with warm water, dry and powder. Boiling, or nearly boiling water is used to dilute the strong nitric acid solution, because it will thereby be able to stand more dilution without precipitation of oxysalt than with cold water. The black triiodide is first formed, which, on agitating the warm liquid for several minutes, gradually changes into the red oxyiodide. The bismuth solution is poured into the iodide, and not the reverse, in order to prevent the formation of oxynitrate. Hot water is used to precipitate the bismuth salt in, as it hastens the conversion of the triiodide into the red oxysalt. Yet the water must not be too hot, else the nitric acid will decompose some of the oxyiodide and cause the loss of iodine.

In a subsequent paper in the same journal (March, 1887, page 117), Mr. Frank X. Moerck states that the above process does not produce a pure product, but one contaminated with oxynitrate.

He found that when subnitrate of bismuth and iodide of potassium are boiled together with water, they produce an oxyiodide containing still some oxynitrate. Yet in consideration of the fact that *pure* subiodide of bismuth has as yet not been employed in medicine, but only the compound still containing some subnitrate, the author recommends the process outlined below. It is based on the following reaction, derived from an analysis of the product produced :

| $3BiONO_3$† | + | KI | = | $BiONO_3(BiOI)_2$ | + | $2KNO_3$ |
|---|---|---|---|---|---|---|
| bismuth subnitrate | | potass. iodide | | mixture of 1 mol. of subnitrate and 2 mol. of subnitrate of bismuth. | | potass. nitrate |

In practice, 10 parts of subnitrate of bismuth are mixed with 4 parts of iodide of potassium and 50 parts of water, and the whole boiled for 30 minutes. The mixture is then filtered, and the precipitate washed until the washings are no longer rendered turbid by nitrate of silver. It is then dried, first by pressure between bibulous paper, and then at 120° C. (246° F.).

Pure subiodide of bismuth was prepared by Mr. Moerck in several ways, the most satisfactory one appearing to be the following: To hydriodic acid add subcarbonate of bismuth in small portions. At first, a yellowish-red solution is produced, carbonic acid being given off. On further addition, the normal triiodide of bismuth is precipitated. This is changed by boiling with subcarbonate into subiodide. The addition of subcarbonate of bismuth to the acid must cease as soon as it begins to lose its reddish color and becomes pale yellow. At this point there is still a little hydriodic acid present.

*Cali Nuts* ("Nuces Cali").—Under this name, a kind of seed has appeared on the market which has much resemblance to Calabar beans, and might therefore, with more propriety, be called "Cali Beans." Their whole appearance leaves no doubt that they are derived from a papilionaceous plant, from the sub-tribe of Phaseoleæ, but the true source has not been ascertained. The seeds come from the western coast of Africa, the same as calabar beans. From the latter they differ, according to Merck, merely in dimensions. He found them to contain an alkaloid which showed the physical and chemical characteristics of physostigmine, and had also the same ultimate composition.

*Conessine* is an alkaloid prepared by Merck from the bark and seeds of *Holarrhena antidysenterica*. It has been recommended in dysentery and diarrhœa, but nothing definite is, as yet, known regarding its dose.

*Congo Paper*.—Congo red has the property of being colored blue by acids, more so by inorganic than organic ones (see AM. DRUGG., 1887, 13). Paper tinted with Congo red has the same property as the latter. For instance, it is colored a fine blue tint by free acid in the stomach, while acid salts produce no change. As little as 0.0019% of free acid can be easily detected. Prof. Riegel, of Giessen, has found that the intensity of blue tint produced depends on the *quantity of free acid* present; also that when hydrochloric acid is absent or only present in traces, even though organic acids are preesent, a distinct blue tint is never produced.

*Cytisine Nitrate*.—Most species of Cytisus (Broom; Scoparius) contain a crystallizable alkaloid, cytisine, which has been ascertained to be a very energetic poison, 1/16 grain being capable of causing immediate death to a good-sized dog. It produces a very strong blood-pressure, greater than can be obtained by the largest admissible doses of digitalis. Its therapeutic employment will depend upon further investigations.

*Fluid Extracts* are at last beginning to receive the recognition of the medical and pharmaceutical professions in Germany. Merck says that, particularly in Germany, this most rational of all known methods of preparing extracts is at last receiving the attention which it ought to have had long ago.

*Caustic Potassa*, entirely free from silica or alumina, is now manufactured on the large scale, and will no doubt be in lively demand, particularly for analytical purposes.

### Posological Notes on New Remedies.

*Osmic Acid* (used in epilepsy and sciatica).—Best administered in pill form made up with Armenian bole. The dose is 1½ grain, which may be repeated several times a day. *Agaricine* (used for night-sweats).—Best administered in combination with Dover's powder. Dose 1/12 to ⅙ grain. *Bismuth Salicylate.*—Dose from 5 to 7 grains, in pill form. In typhoid this dose may be doubled and repeated every hour up to 10 or 12 times. *Canabinone* (sedative and hypnotic).—From ¾ to 1½ grain. Best administered mixed with finely-ground roasted coffee. *Colocynthin* (used subcutaneously).—The dose is from ⅙ to ⅓ grain. It may also be administered in pill form, by the mouth, the requisite dose being from ⅓ to 1 grain. *Convallamarin.*—Internally, in pill form, the dose is from ¾ to 1½ grain. *Nitroglycerin* (used in angina pectoris, and as a diuretic).—Rossbach prefers ether as a solvent. His formula is as follows:—Dissolve 1½ grain of nitroglycerin in sufficient ether, and add the solution to a mixture consisting of 2 oz. of powdered chocolate and 1 oz. of powdered gum arabic. Mix very thoroughly and divide into 200 pastilles. Each pastille will thus contain 1/133 grain of nitroglycerin. *Picrotoxin.*—Dose from ⅛ to ⅙ grain for epilepsy in aqueous solution. *Sulphate of Thalline* may be given dissolved in wine or water (with some corrigent). The dose is from 4 to 8 grains, or 1 grain every hour.—*Chem. and Drugg.*

◆

**Preparation of very Finely Divided Asbestos for Filters.**—Asbestos filters are very useful in cases where the liquid to be filtered is of a caustic or strongly acid nature, or where the filter with residue is to be ignited without consuming the filter, or where the residue is subsequently to be dissolved off the filter by acids or other solvents. In many cases, a very finely divided asbestos is desirable. This is accomplished by a process recently patented in Germany by Fr. Breyer, of Vienna.

The asbestos is first coarsely ground and then mixed with some granular crystalline carbonate which must be soluble in acids. The carbonate should possess a hardness between 3 and 4.5 according to the mineralogical scale. The mixture is intimately ground together in a mill. Afterwards the mass is treated with an acid until the carbonate has been dissolved out. The escaping carbonic acid gas causes the asbestos fibres to be loosened and disintegrated from each other so as to render the mass porous. Of course, it must be thoroughly washed with water before being used.

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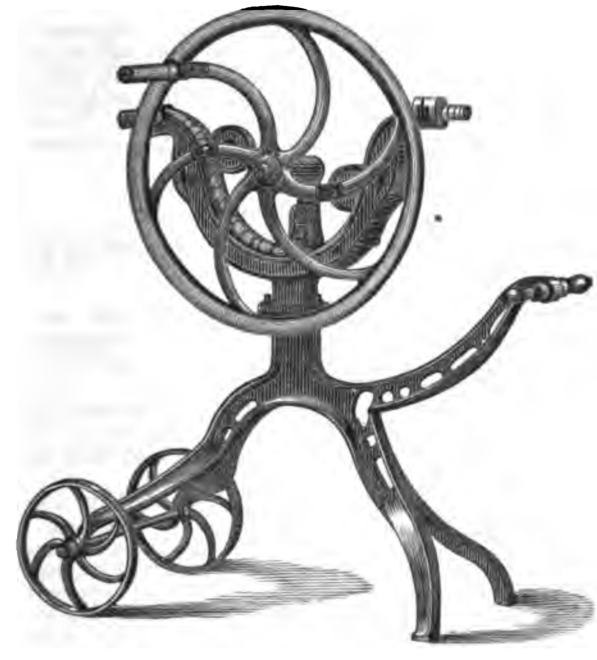
* Abstract from a circular of E. Merck, January, 1887, with additions from other sources.

† *Note.*—Mr. England renders it probable that the officinal subnitrate is an *anhydrous* salt, $BiONO_3$, instead of one containing 1 mol. of water, as has been heretofore assumed. (*Am, J. Pharm*, 1887, 13,)

### THE SIPHON-PUMP.

THE accompanying cut illustrates a pump which requires neither a piston nor a cylinder. All that is necessary is to place an elastic rubber hose into the groove of the semicircular frame, and to connect the ends with the fixed couplings placed at either end. A suction hose is then attached at one side and a delivery hose at the other. The wheel carries in two of its arms two small rotary wheels, which are placed somewhat eccentrically, so that while one of them on coming in contact with the hose compresses the latter, the other on the opposite side is at this moment gradually releasing its pressure and restoring the full diameter of the hose. When the large wheel has made another half revolution, the same action of the two small wheels is repeated, and so on. The compression of the hose creates a vacuum into which the liquid from the tank, cask, etc., is forced by atmospheric pressure. We have here the same principle as in the well-known rotary pump. In the latter the working parts—eccentrically placed, and sliding paddles—are all contained inside of an iron case or box. In the pump here described (of which the inventor is not mentioned in the publication from which we have copied it), the working parts are outside, easily accessible and readily repaired if they get out of order.—After *Le Monde de la Science.*



Siphon-pump.

### IMPROVED BURETTE FOR ETHER.

IN certain cases it is necessary to measure off a given volume of ether (or of other volatile liquids) by means of a burette. When this operation has to be frequently repeated, it is of advantage to use the apparatus devised by Soxhlet, which saves time, labor, and material.

The flask *A* is the reservoir for the ether or other liquid. On pressing upon the rubber bellows, air is forced into *A*, and the stop-cock *B* being at the same time opened, the ether, etc., is forced up into the burette until it reaches *D* and overflows into the flask *G*. The stop-cock is then closed. Next, the requisite quantity of ether, etc., is drawn off by opening the stop-cock *E*. The burette may then immediately be filled again in the same manner, and this may be repeated as often as necessary, without loss of time.

When the flask *G* is full, it is put in place of *A*, and *A* is used to catch the overflow.—*Rep. der. Anal. Chem.*, 1886, 637.

### Strophanthus.

MR. H. HELBING, of London, has published the results of a series of experiments he has made with this new drug, from which we take the following (after *Pharm. Zeitung*):

The pods of strophanthus vary greatly in size, weight, and in the number of seeds they contain. Of 5 pods which the author examined, one contained 86 and another 183 seeds, the others being between this figures.

The average percentage weight of the shells of the pods was 35.6%; that of the hairs, 26.9%; that of the seeds 37.4%. Each seed weighed, on an average, 0.08 Gm. (1¼ grains).

The seeds were found to contain:

| | |
|---|---|
| Fatty oil, soluble in ether | 24 |
| Extract, prepared by diluted alcohol (Pharm. Germ.) | 26.5 |
| Residue | 49.4 |
| | 99.9 |

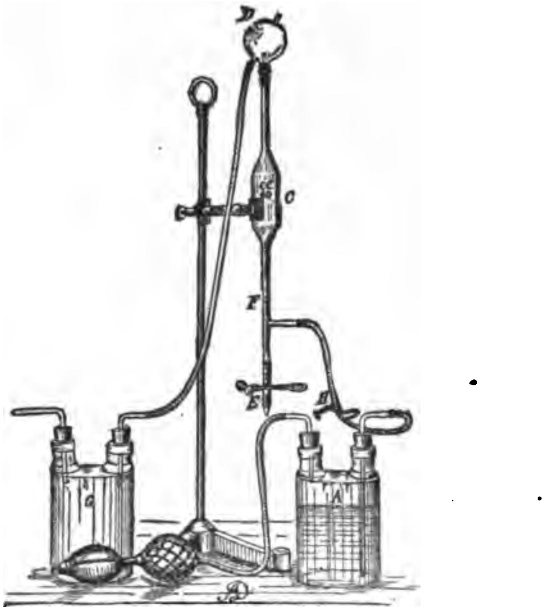
The author prepared *strophanthin* by extracting the seeds with alcohol, treating the extract with water, freeing the watery solution from fat by means of ether, and precipitating the aqueous solution by acetate of lead. The filtrate was then freed from lead by hydrosulphuric acid, the new filtrate decolorized with animal charcoal and carefully evaporated. The product amounted to 8.75% of the seeds. In concentrated aqueous solution it had a strongly acid reaction and a very bitter taste. It is easily soluble in water or alcohol, but insoluble in chloroform, ether or benzin.

For preparing the tincture, the author prefers *diluted alcohol*, because strong alcohol extracts too much of the fat. The strength of the tincture is such that 100 parts of it (by weight) represent 5 parts of the seeds. It has a light greenish-yellow color, a spec. grav. (at 15° C.) of 0.898 (the diluted alcohol, at the same temperature, had the spec. gr. 0.894). The tincture contained 1.32% of dissolved matter. Its taste is quite bitter, and it has a peculiar narcotic odor.

The average dose is from 5 to 10 drops twice daily.

The Pharmaceutical Society proposes to prepare the tincture likewise with diluted alcohol, in the proportion of five of the seeds in 100 parts of tincture; but it recommends the previous removal of fat by ether.

Not long ago a false strophanthus made its appearance in the London market.



Ether burette.

### Tincture of Strophanthus.

PROFESSOR T. R. FRASER, of Edinburgh, who introduced strophanthus, publishes a paper (*Brit. Med. Journ.*) in which, as we have previously stated, he gives preference to a tincture, each 20 parts of which represent one of the seed. He explains that the principal reason for recommending a 1 in 8 tincture in the first instance was for the purpose of comparing the relative activity of digitalis and strophanthus. It has been pointed out that the dose of this tincture was rather small for general practice, and for this reason the following formula is recommended:

Strophanthus seeds, deprived of their comose appendices, reduced to powder, and dried, 1 oz., or 1 part. Ether, freed from spirit and from water, 10 fl. oz., or 10 fluid parts. Rectified spirit, a sufficiency to obtain 1 pint (Brit. meas.), or 20 fluid parts.

Remove entirely the stalks and comose appendices from the seeds, reduce the seeds to a moderately fine powder, and dry the powder by exposing for twelve hours to a temperature of 100° or 120° Fahr. Pack in a percolator, the percolator being furnished with air-valves, or being otherwise so constructed that the percolation may be arrested when desired; add ether until the whole of the powder is saturated, and a small quantity of the ether has dropped into the percolator; arrest the percolation for twenty-four hours, and then continue percolating slowly until the whole of the ether has been used. If the last ether percolate should not be almost colorless, use more ether.

Remove the powder from the percolator; expose to the air, and break up any lumps after the ether has sufficiently evaporated; and continue the exposure, heating the powder, if necessary, to 100° or 120° Fahr.. until all the ether has evaporated, when a uniform, nearly white, dry powder may easily be obtained.

Repack the powder in the percolator, add enough rectified spirit to moisten it thoroughly; arrest the further flow of the spirit. and macerate for forty-eight hours: and pass rectified spirit slowly through until 20 fluid parts of tincture have been obtained.

In this process, the preliminary extraction with ether is for the purpose of removing the large quantity of inert oil contained in the seeds, which, if present in the tincture, would cause it to become opalescent on the addition of water.

The dose of this tincture is from 5 to 10 minims. It may also be used in doses of ¼ minim to 2 minims, frequently repeated. It is nearly colorless, having a very pale-yellow tinge; neutral in reaction, and intensely and rather persistently bitter in taste. It mixes unchanged with water, is not precipitated by solution of tannin, but becomes markedly opalescent when ether is added to it. Solution of perchloride of iron intensifies its yellow color, and, at the same time produces a slight haziness in the solution; and, after some hours, the slightly opalescent fluid acquires a greenish-yellow color.

The chemical and pharmacological experiments which Professor Fraser has made show that the seeds contain a much larger quantity of active principle than any other part of the plant. The pericarp of the follicles, and the comose appendices of the seeds, contain a relatively small quantity, and the quantity is not the same in each part of the pericarp, and he expresses the opinion that the seeds furnish the most convenient and trustworthy preparations for therapeutic administration, and that they alone should be used for preparing the tincture.—*Chem. and Drugg.*

### Note on Kamala.

A. G. PERKIN and W. H. PERKIN, Jr., have made a preliminary announcement of the isolation of a crystalline principle from *Kamala*. It was obtained in the following manner: Kamala, as finely divided as possible, is shaken with carbon disulphide. A portion of the former is thus dissolved. On concentrating the yellowish-brown solution on the water-bath, to a certain point, a yellowish-brown, gelatinous precipitate will separate on cooling. This is separated by filtration, treated with small portions of carbon disulphide in order to remove resinous impurities, and the residue then purified by crystallization from toluol or benzol. After two crystallizations from toluol, the new substance was obtained in small flesh-colored needles. For the present the authors have named this substance *mallotoxin*. Further details regarding its nature and properties are promised.

### To Prevent the Capillary Creeping of Liquids.

WHEN liquids are filtered through paper, it often happens that the upper edge of the filter becomes encrusted with a mass of crystals or other solid matter, owing to the capillary ascension of the liquid to the edge of the filter, where it evaporates. If the filter lies close to the funnel, the solid matter will often creep over the edge. This may be prevented by adopting Gawalovski's suggestion, viz., to treat the edge of the filter with a solution of a substance entirely unmiscible with the liquid to be filtered. In the case of aqueous liquids, it is best to employ a solution of soft paraffin in ether, petroleum ether, or similar solvents. Where these are inadmissible, it is best to use an aqueous solution of gum arabic or some other gum, or a solution of starch, either alone or mixed with kaolin.—*Zeitsch. Anal. Chem.*

[This expedient is not new, being well known and in general use for preventing liquids, etc., from creeping over the edge of evaporating dishes.—ED. AM. DR.]

### Note on some Oils of the Citrus Family.

P. SOLTSIEN has published the results of some investigations on the commercial oils of the citrus family, of all of which he employed samples of known purity. We abstract from his papers the figures relating to specific gravity (at 20°C. (68° F.)) and boiling point.

*Oil of Lemon.*—Sp. gr. 0.872; rectified oil 0.866.

Boiling P.: 170–176° C.; boiling begins at 170°–173° C.; at 176° the boiling point remains constant for a considerable time. The rectified oil has the constant boil. p. 164.5° C.

*Oil of Bergamot.*—Sp. gr. 0.878, 0.8772, 0.8776; rectified 0.8611.

Boil. P.: 183°–183.5°; rectified 169° C.

The pure oil has a wine-yellow color; the greenish tint is acquired by its being kept in copper. Oil of lemon does not assume a green tint under these circumstances; only after it has been exposed for some time to light and air, and has become acid and deposited a sediment, does it take up copper when in contact with it, assuming a bluish-green tint (the same as oil of turpentine.)

*Oil of Sweet Orange* (Oil of Portugal).—Spec. gr., from ripe fruits 0.8508; from nearly ripe fruits 0.8451; rectified 0.8420.

Boil. P.: constant at 174° C. In connection with these, the author also gives the corresponding values for some oils of turpentine.

*American Oil of Turpentine.*—Sp. gr. (at 20° C.), 0.8621, 0.8632, and 0.8675; (rectified not given).

Boil. P.: crude oil 156–158° C.; rectified 154–156° C.

*French Oil of Turpentine.*—Spec. gr. 0.8720; rectified, 0.866.—*Zeitsch f. Naturw.* [4], 5, 174.

◆

**Lamarck's Herbarium** has been purchased by the French government for the Jardin des Plantes, from Mr. Roeper, a professor in Rostock, Germany.

### A New Method of Crystallization.

IT has heretofore been generally held that the formation and growth of regularly-formed and large-sized crystals depended upon the degree of rest and the absence of disturbance during the process of crystallization. Dr. L. Wulff, of Gadebusch (Germany), has, however, found that a very uniform crystallization could be brought about by setting the respective liquid into a perfectly steady, continuous motion. He was led to this by theoretical considerations, which we regret to see omitted in the reports we have so far seen of the process.

The details of the process are in the main as follows:

The respective solution is cooled to the proper point of crystallization, and then mixed with slightly warmed small crystals or fragments of crystals of the same substance. The mixture is now set in rotary motion (in metallic vessels), at first very slowly, afterwards at an increased rate of speed.

During this motion, the crystals will continue to grow and form well-developed and often quite large crystals, particularly in the case of sugar or of ferricyanide of potassium. In the case of salts, such as borax, chloride of manganese, sulphate of copper, alum, tartar emetic, *perfect* crystals larger than peas may thus be obtained. In the case of others (sulphate of sodium, or of iron) the most perfect crystals are somewhat smaller.

When mother-liquors, in which more than one salt is contained, are to be brought to crystallization, they are mixed with crystals of the salt which will separate first and the rotation is continued until the next salt in the series of contaminations begins to separate. This will be in fine powder, as no crystals upon which it could continue to grow had been as yet put into the solution. The crystals of the first salt are then separated by a sieve from the powdery second salt.—*Pharm. Zeit.*

### Court Plasters.

THE following method is that recommended by Eugen Dieterich:

1. *Plain Court Plaster.*

Sew together two meters of silk taffeta, each one-half meter wide, so as to form a piece of one meter square [or, prepare in similar manner, a piece of one yard square], and stretch it tightly upon a frame.

Cut 100 Gm. of best isinglass into small pieces, heat it twice on a water-bath, with a small quantity of water, evaporate the strained liquid to 600 Gm. and then add 2 Gm. of glucose.

To prevent the first application from soaking too far through the fabric, it should be applied cold, and in a cold room, by means of a hair-brush of at least two inches in breadth, care being taken that every part of the surface is coated only twice without pressure. Any apparent inequalities thus produced are equalized during the subsequent applications. These precautions must be observed during the first three applications, each of which, moreover, must be made in a direction diagonal to the preceding. Subsequent applications, likewise alternating in direction, may be made in a moderately warm room, and must be continued until the mixture is consumed. Should anything be left over, not sufficient for a whole application, it is to be diluted with a little water to make a sufficiently large volume. Each subsequent application must be made only after the preceding one has become completely dry.

Finally, while the fabric is still stretched over the frame, the back is coated with tincture of benzoin diluted with an equal quantity of alcohol [some use a colorless resin in solution]. When dry it is removed from the frame, the seam is cut out, and the plaster rolled up so that the spread surface is on the outside.

2. *Arnicated Court Plaster.*

Proceed as in the before-mentioned process, except that the solution of isinglass is divided into two halves, the first of which is applied as such, while the second is mixed with 50 Gm. of tincture of arnica.

3. *Benzoated Court Plaster.*

Prepared like the last, only that 2 Gm. of benzoic acid dissolved in alcohol are added, instead of the tincture of arnica.

4. *Salicylated Court Plaster.*

Like the preceding, except that 2 Gm. of salicylic acid dissolved in alcohol are used here.—After *Pharm. Centralh.*

### Remedy for Neuralgia.

DR. JOHN T. METCALFE, a well-known physician of New York, writes to the *Boston Medical and Surgical Journal* that the following formula was learned by him from one of his patients whom he had sent to Cuba with the hope that a change of climate would afford relief from sciatica. A French physician who there attended him used this remedy with the best results, and Dr. Metcalfe has tried it so often since with success that he speaks of its value with great confidence.

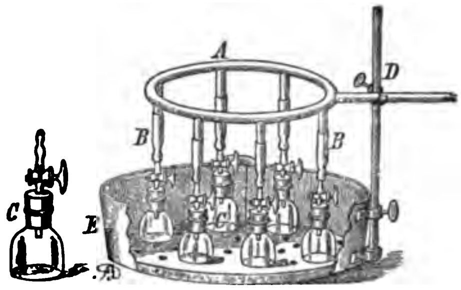
Equal parts of the tinctures of aconite root, colchicum seeds, belladonna, and actæa racemosa. Six drops to be taken every six hours until relief is felt.

The doctor says that "as an internal remedy it is worth all others put together of which I have knowledge."

## DRYING APPARATUS.

The apparatus here illustrated is used in many French laboratories, and consists of a circular metallic tube, to which are attached a number of arms, each provided with a stop-cock, which are connected with small, wide-bottomed flasks (the so-called weighing bottles will answer well). A horizontal prolongation of the circular tube is connected with an exhaust or vacuum pump, and at the same time serves for adjusting the whole arrangement at any desired height upon a retort-stand.

When viscid or syrupy liquids are to be brought to a dry extract, it is advisable, first, to deprive them of most of their water by evaporation in open vessels, and then to transfer an aliquot, but weighed portion of the residue into the bottles, where they are further dried by immersing them into a water-bath, and then opening the stop-cock, so that the hot vapors given off may be aspirated.—*Dingler's Polyt. Journ.*, 262, 267.



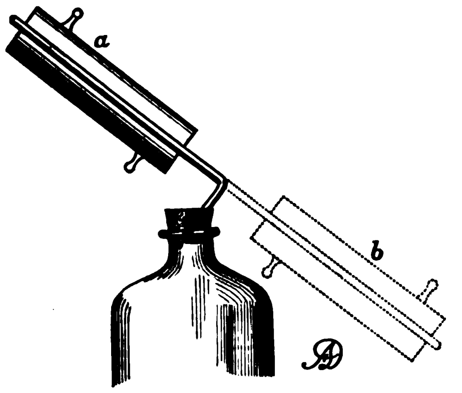
Laboratory drying-apparatus.

## REVERSIBLE CONDENSER.

H. Michaelis publishes a simple method by which a condenser may be made to assume either an upward or a downward direction, according as it is required to serve as a reflux-condenser, or for distilling off a liquid.

If it is required for the first-mentioned purpose, when the condensed liquid is required to flow back into the flask, it is inserted into the cork closing the neck of the latter in the manner shown by the position at *a*; the neck of the condenser, which is bent at a right angle, passing through the cork at an angle of 45 degrees. When the operation is completed and the liquid is to be distilled off, the condenser is merely turned about its axis until it occupies the position at *b*, indicated by the dotted lines.—*Rep. d. Anal. Chem.*, 1887, No. 4.

[Note by Ed. Am. Dr.—We may add that an arrangement of precisely the same nature has been used by us for a long time. It is one that would naturally suggest itself to different operators independently of each other.]



Michaelis' reversible condenser.

## AN IMPROVED THERMOMETER.

When it is desired to make the reading of a thermometer visible at a considerable distance, the method of construction recently described by Friedrich C. G. Müller may be used. The chief object in designing this was to enable the whole audience at a lecture to distinguish the rise and fall of the column within the thermometer. This was accomplished by selecting sulphuric acid as the liquid, in place of mercury, the former having a coëfficient of expansion three-and-a-half times in excess of that of the latter. The annexed cut shows the appearance of the instrument. The tubing has a bore of 0.8 *mm.* The bulb is 25 *mm.* long and 10 *mm.* in diameter. The scale is drawn on card-board, bent at an angle of 120°, so that it may be seen from both sides. Every tenth degree is marked by a heavy black line, and the intermediate degrees (though they may be read off on the scale) are easily estimated by guessing. The fields of the decades immediately below 0°, 100°, and 200° are tinted carmine, those at either side of 50° and 150° green.

The accuracy of an instrument of this kind has been tested by comparison with mercurial thermometers.—*Ber. d. D. Chem. Ges.*, 1886, 2175.

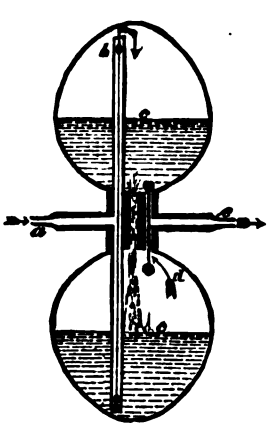
## PFRENGER'S DROP-COUNTER.

Drop-Counters appear to be a favorite object of the inventive genius of pharmacists at the present time. To those illustrated heretofore, we add now another, some time ago devised by Pfrenger, and for which a patent has been applied for. Its construction will be understood by examining the cut. The stopper of the bottle consists of two parts, the long hollow tube, *b*, which forms the stopper of the bottle itself, being ground at its upper exterior surface to fit the neck of the bottle. A separate stopper, *c*, fits into this. Near the contracted end of *b* is a small orifice *c*, through which the liquid in the bottle may enter the interior of the stopper, while a small hole both in *c* and *b* at one side of the neck *a* permits the entrance or escape of air, when the inner stopper is turned so that the two holes coincide. Under ordinary circumstances, when liquid is to be poured from the bottle itself, the stopper is turned so that the holes do *not* overlap. Hence the long stopper *b* may be lifted out and held in one hand in the usual manner, without risk of losing any drops of liquid. If drops are wanted, the long stopper *b* is held in one hand and the smaller stopper *c* turned until the holes meet, when the liquid will be delivered in drops.—After *Pharm. Zeitung.*

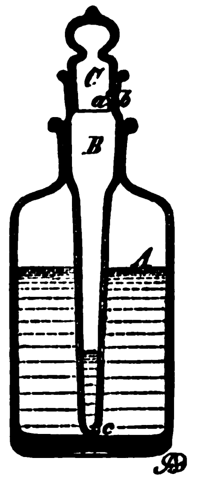
## A DOUBLE ASPIRATOR.

A very serviceable and compact form of double aspirator, which is set in motion merely by turning over, is that constructed by Gawalovski. It resembles that of Muencke, described and illustrated by us in New Remedies, 1877, p. 196.

Its mode of action is easily understood from the illustration. While the contents of the upper reservoir flow into the lower, the external air is aspirated through the hollow axle *a*, and the air contained in the lower vessel is expelled through *e*. By connecting the latter orifice with a blast lamp, the jet of air may be utilized in glass-blowing or other operations.—*Chem. Centralbl.* and *Zeitsch. f. anal. Chem.*



Gawalovski's double aspirator.

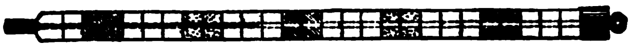


Pfrenger's Drop counter.

## A Japanese Pharmacopœia.

Japan has adopted another mark of Western civilization, and has now an official pharmacopœia. The work is the compilation of a committee appointed in 1880, consisting of twenty-one members, the majority of whom were natives, but including such Europeans as the late Dr. Geerts, Dr. Eykmann, Dr. Laggard, and Dr. van der Heyden. The work, which consists of nearly four hundred octavo pages, is described as being divided into three parts, the preface contains a history of the proceedings of the committee and the rules followed in the compilation, together with definitions of the principal technical and other terms used. It is also therein stated that the work was originally written in the German language, as being understood by most of the members of the committee, but that, nevertheless, the Japanese version is to be considered the official text. It is intended to publish the work eventually also in Latin.

The Pharmacopœia contains 475 articles, nearly all of which are official in the British, German, and United States Pharmacopœias. Each article is arranged in alphabetical order according to the Latin name, but this is preceded by the Japanese name. The Latin nomenclature adopted resembles pretty closely that of the British and United States works, but shows traces of German proclivities in the use of such forms as Kalii, Natrii, and Chininum. Under the title of each article is given a description of its appearance and taste, tests for its purity, and method of preparations. In the formulæ for compounds the proportions are given in parts, but the metric system forms the basis of all measurements. The appendix contains lists of dangerous and powerful remedies, doses, solubilities, etc.—*Pharm. Journ.*



Müller's improved thermometer.

### Wine of Cinchona.

**The** *Pharmaceutische Rundschau* (Prag) has a short article on wine of cinchona, in which it is stated that the cause of the precipitate frequently occurring in this preparation is the cinchona red [which itself is closely related, chemically, to cincho-tannic acid]. When this substance is removed, the cinchona wine will remain clear. The author next quotes one of the formulæ for this preparation proposed in the Preliminary Draft of a National Formulary, in which the bark is mixed with lime and water, dried, and then extracted with alcohol, whereby all the tannic acid is removed, and the alkaloids are extracted. It would appear, however, according to Prof. Liebreich, that such a preparation is not exactly what the physician wants. The latter does not use it so much on account of its alkaloids as for the cincho-tannic acid it contains. We had better quote Prof. Liebreich's own words (from *Therapeutische Monatshefte*, No. 1):

"Nobody will want to use wine of cinchona as an agent to lower the temperature of the body. For such purposes we employ quinine in large doses. In treating malaria, the same principle prevails.

Cinchona wine is useful as a *bitter tonic*.

Though we have not yet arrived at the end of the study of the bitter tonics, yet it is certain that they cause an increased secretion of saliva, while the mucous secretion in the stomach is diminished and the appetite is augmented. They also probably prevent abnormal decompositions of the food in the stomach and intestines. Hence we observe that wine of cinchona is beneficial in feeble digestion affecting the whole intestinal tract, such as may occur in anæmic patients after acute diseases. An addition of *glycerin* to wine of cinchona *neutralizes* its *tonic* effect.

If we examine the methods used by pharmacists in preparing wine of cinchona, we find that they consider the extraction of the alkaloids to be the principal aim, while the extraction of the important cincho-tannic acid appears to be overlooked. Moreover, with a view to prevent the precipitation of alkaloid in the finished wine, the proposition has been made to make it with the aid of glycerin—as much as 20% in the finished product. It is quite proper to add glycerin to solutions of digestive ferments. But these solutions are used for entirely different purposes, therapeutically, from wine of cinchona. Up to the appearance of the 2d ed. of the Germ. Pharm., German physicians have been accustomed and satisfied to prescribe "wine of cinchona," and not "glycerin-wine of cinchona," and we did not care in the least whether any of the alkaloids had separated out or not. The new pharmacopœia has altered all this by giving us a remedy which has to be tested anew as to its therapeutic action."

Liebreich quotes three old processes for preparing cinchona wine, any of which he appears to prefer to the officinal one:

1. Cinchona, in coarse powder .................. 1 part.
   White wine.................................12 parts.

Macerate 24 hours, frequently shaking; then filter. (*Dispensatorium Fuldense*, 1791.)

2. Cinchona in powd.............................. 1 part.
   Madeira wine.............................16 parts.

Macerate (cold) during 4 weeks, express and filter. (*Van Mons*, 1821.)

3. Cinchona in powd........................ 64 parts.
   Alcohol.................................. 125 "
   Good red wine.............................1,000 "

Macerate the cinchona for 24 hours in the alcohol, then add the wine; macerate for eight days, shaking from time time, strain, express and filter. (*Codex*, 1839.*)

### Improved Method of Preparing Tannate of Quinine.

**The** published methods for preparing tannate of quinine—which is so much in demand as a tasteless quinine salt—have nearly all of them the drawback that they start from the commercial sulphate which is to be dissolved in sulphuric acid. The presence of this excess of acid, however, causes a great loss of alkaloid, both during the precipitation and the subsequent washing. Mr. P. J. Haaxman now recommends the following improved method which was specially designed to avoid this loss.

Dissolve 20 parts of bisulphate of quinine, with the aid of a gentle heat, in about 100 parts of distilled water, and dilute the solution with distilled water to about 1,000 parts. Mix this solution with another prepared from 40 parts of crystallized carbonate of sodium in about 160 parts of distilled water, collect the precipitate, wash it with cold water, press it gently, and dissolve it while still moist in 200 parts of strong alcohol. If necessary, filter the solution and add it drop by drop, and under stirring, to a cold-prepared, filtered solution of 60 parts of pure tannic acid in 1,000 parts of distilled water. Let the mixture stand a few hours, stirring now and then with a glass rod, pour off the supernatant liquid as much as possible without loss of material, and collect the precipitate in a dense, moistened linen strainer stretched over a frame. Wash it with a little water at a time, until the washings possess only a slightly astringent taste, after which it may be dried without heat.

The quality of the product depends much upon the method of drying, for which reason the author gives special directions as to the latter.

The voluminous precipitate collected upon the strainer still contains, even after draining a long time, a large quantity of liquid holding tannic acid in solution. If this were left in the mass, the latter would, on drying, possess an astringent taste. The author prefers to press the strainer gently in the manner usual with voluminous precipitates which part with their water slowly.

This is done by placing a pad of filter-paper upon a board of about the size of the strainer, then putting the latter, tied in shape of a bag, upon it, and placing on top another pad of filtering paper and board. A weight is placed on top of the latter. After a short time the lower pad of bibulous paper will be quite saturated with the liquid. The whole pile is then reversed and a new pad introduced. This is continued until the filtering paper ceases to take up any moisture. The strainer is then laid upon a horse-hair sieve, the contents equally distributed, the sieve covered with paper and suspended in a suitable place until the contents are dry.

When a larger quantity of the salt is to be prepared, the alcohol which has been used may be recovered by distillation from the first rejected liquid.

If direct heat is avoided in the preparation, the tannate of quinine will have a light yellowish-white color.

A recent lot prepared by the author of this method was found to contain, by assay, 21 per cent of anhydrous quinine.—*Nieuw Tijdschrift voor de Pharm. in Nederland*, 1886, 395.

### The Solubility of Certain Quinine Salts.

J. **Regnaud** and E. **Villejean** have made a series of new determinations of the solubility of certain salts of quinine. Two kinds of each of these salts were examined. In one case the salt conforming to the requirements of the French codex was taken, and in the other case a specially prepared salt, made by carefully saturating absolutely pure quinine (made from iodo-sulphate, or herapathite) with just enough pure acid. The following table contains a portion of the results obtained. It will be seen that there is considerable difference in some cases. The salts prepared by the authors themselves are distinguished by the letters R. & V., the officinal salt by "codex."

| Salts of Quinine. | Temp. C° | Quantity of Dist. Water required to dissolve the | |
|---|---|---|---|
| | | Anhyd. Salt. | Hyd. Salt. |
| Hydrobromate, basic, R. & V. | 18 | 50.36 | 48.14 |
| " " Codex. | 15 | 47.05 | 45.02 |
| " neutral, R. & V. | 14 | 7.58 | 6.82 |
| " " Codex | 15 | 7.04 | 6.33 |
| Hydrochlorate, basic, R. & V. | 15 | 23.58 | 21.40 |
| " " Codex | 12 | 26.10 | 23.73 |
| " neutral, R. & V. | 15 (about) | ..... | 0.66 |
| Salicylate, basic, R. & V. | 15 | 886 | 86 |
| " " (after Codex). | 10 | ... | 900 |
| Sulphate, basic, R. & V. | 14 | 719 | 615 |
| " " " | 15 | 680 | 581 |
| " " " | 16 | 654 | 559 |
| " " " | 17 | 640 | 547 |
| " " " | 18 | 626 | 533 |
| " neutral, " | 15 | 11.77 | 8.81 |
| " " " | 17 | 11.24 | 8.62 |
| " " " | 18 | 10.40 | 7.51 |
| Valerianate, basic, " | 12 | 38.40 | |
| " " " | 16 | 38.70 | |

—After *Journ. de Ph. et Chim.*, 1887, Jan.

◆

**Cinchona in India.**—At the suggestion of the Surgeon-General of Her Majesty's forces in India, the Government there have resolved to make trial of the fluid extract of cinchona in Upper Burmah. Much inefficiency among the troops there is due to fever, and it is thought that the fluid extract may prove more useful than quinine or the well-known cinchona febrifuge, which is a mixture of the whole of the alkaloids of the bark. Mr. David Hooper, the Government quinologist, has been directed to manufacture a supply of the extract, and it is proposed to make a free distribution of it from dispensaries for a year, so as to determine its usefulness or otherwise. In the revised minute of the retiring Governor-General (Mr. Grant Duff) it is stated that Mr. Hooper has produced the fluid extract at an astonishingly low price, and that a bottle containing eight doses will be sold at one anna (about 1½*d*).

**A New Wound Dressing.**—The *Journal de Médecine* gives the following formula for a substitute for collodion and chloropercha, which is said to cause no inflammation, and to relieve pain:

Mastic, in globules, 3 grammes; balsam of Peru, 1 gramme; chloroform, 5 grammes. The mastic having been powdered, is mixed with the other ingredients in a stoppered bottle and shaken from time to time until solution is effected. It is applied directly to the surface of the skin or on strips of linen or silk, like court-plaster.

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* In quoting this formula after Gray's Supplement, Dr. Liebreich slightly altered the proportions which we have restored.

## A NEW EXTRACTION APPARATUS.

**Dr. L. Lewin** * has constructed an improved extraction apparatus, which permits extraction, not only with hot but also with cold solvents, and also the recovery of the menstruum by direct distillation. At the same time it is easily put together or taken apart.

The apparatus consists of three principal parts:

*C* a boiler made of tinned copper.

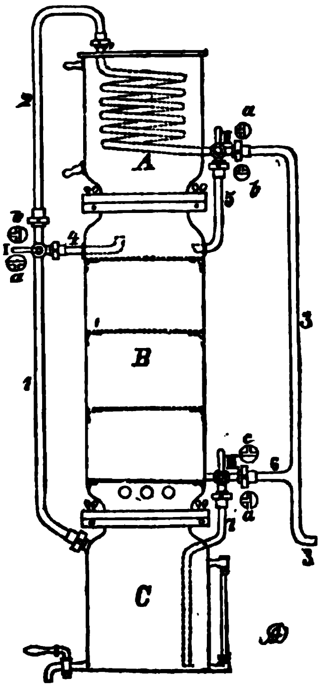
*B* an extraction cylinder of copper, which does not rest upon the copper-boiler, but has at its lower end a hollow space communicating with the external air. Inside of the cylinder are three removable diaphragms, which serve for supporting the substances to be extracted. At the lower end of the cylinder is the receptacle for the extract. The bottom of the cylinder is inclined, and the hollow space below it helps to keep this cool.

*A* the condenser.

The whole apparatus hangs in a tripod.

1. *Continuous Extraction with Hot Solvents.*—In this case, the vapors of the menstruum pass out from the boiler *C* through tube 1, pass through the three-way cock *I* (in the position shown at *a*), through tube 4 into the extraction cylinder *B*, penetrate the substance contained therein, and are then condensed. The saturated menstruum collects in the lower part of the cylinder, and from there passes into the boiler through the three-way cock *III* (turned as shown at *a*).

In order to avoid too high a pressure in the apparatus during this operation, tube 2 is screwed off, and the three-way cock *II* turned in the position shown at *a*. This enables the uncondensed vapors to find their way into the condenser, which thereby acts as a safety valve.



Lewin's extraction apparatus.

2. *Continuous Extraction with Cold Solvents.* — In this case, the vapors from the boiler *C* pass through tube 1, next through the stop-cock *I*, turned in the position *b*, through the tube 2 into the condenser. From here the condensed liquid flows through stop-cock *II* (turned as shown in *a*) into the cylinder, permeates the substance, and finally reaches the boiler, as in the previous case.

3. *Recovery of the Solvent.*—The vapors pass from the boiler through tube 1, the stop-cock *I* (turned as in *a*), then through tube 2 into the condenser. From there through the stop-cock *II* (turned as in *b*) into the exit tube 3, which may be lengthened as desired.

4. *Other Conveniences.*—By turning the stop-cock *III* into the position shown in *c*, the extract may at any time be drawn off through the tubes 6 and 3. Moreover, new menstruum may at any time be added, after removing tube 2, through the stop-cock *I* turned as in *b*.

The boiler *C* may either be heated by a naked flame, or it may be provided with a steam-jacket.

[*Note by Ed. Am. Drugg.*—Instead of having a steam-jacket permanently connected with the apparatus, it may be set into a copper or iron basin (such as the usual water-baths), into which a moderate current of live steam is allowed to enter, provision being at the same time made for the escape of the condensed water.]

Dr. Lewin recommends a definite proportion, in capacity, between the boiler, extraction cylinder, and condenser, namely, 2 : 4 : 3.

The apparatus is made for sale by Gustav Christ (formerly Christ and Schalles), of Berlin, Schmidstrasse 33.

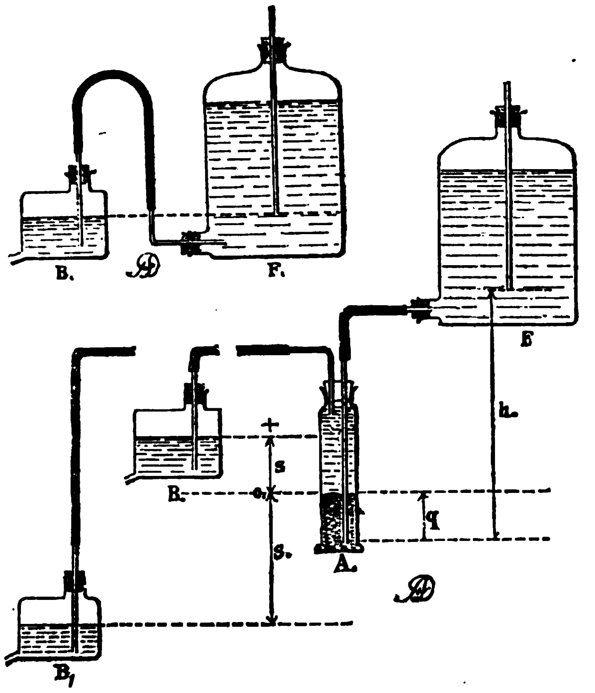
## SELF-FEEDING SPIRIT LAMPS.

**R. Bensemann** describes an apparatus which he has employed for a number of years for the automatic supply of spirit-lamps in laboratories where illuminating gas is not available, or when the latter is otherwise objectionable.

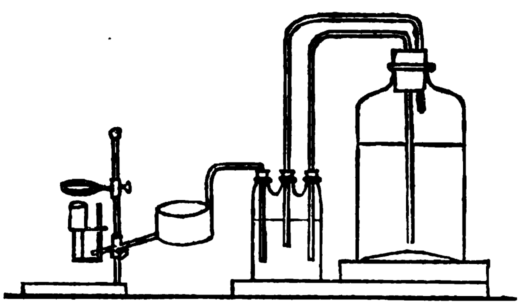
*F* is the reservoir, *A* is the levelling flask, being partly filled with mercury and having two tubes passing through the cork. *B* is the tank of the alcohol lamp. [The same apparatus can also be used for preserving a constant level in a water-bath. In this case the alcohol is merely replaced by water, and *B* then represents the water-bath.] The level of the liquid in *B* is regulated by the rate of immersion of the tube dipping into the mercury in the flask *A*. If the apparatus is to be started, this tube is drawn so far out of the mercury, until the liquid from *F* begins to flow, and the proper level has been attained in *B*. The tube is then pushed into the mercury far enough to just stop the further flow of liquid. As long as none of the liquid in *B* is consumed, there will be no further action. But if the level in *B* at any time descends, more liquid will pass down the tube dipping into the mercury, and replenish the consumed portion.

The lamp may, of course, stand at any lower level, for instance in the position shown by *B*. In this case it will only require a deeper immersion of the tube in the mercury to bring about the same action.

A still more simple arrangement can be made by omitting the flask *A* altogether, and connecting *B* directly with *F*, as shown in Fig. 2. The proper level is then brought about by the depth to which the tube entering the reservoir *F* is pushed into the latter. The apparatus is started by blowing air into the open tube until the proper level in *B* has been attained. The cork in the neck of the latter serves merely to hold the siphon tube in place; it must not fit tight [or is best provided with a lateral notch to admit air].—*Rep. f. Anal. Chem.*, 1887, No. 1.



Bensemann's self-feeding lamp.



Self-feeding lamp.

**The** following described arrangement will be found serviceable in laboratories where illuminating-gas is unobtainable. The reservoir holds about ten or twelve pints, and is best placed in such a manner that no damage may happen through its accidental breakage. It is closed with a doubly perforated cork bearing two glass-tubes connected with a three-neck Woulff's bottle and the latter again with a small metallic reservoir to which the lamp is attached. When alcohol is burned in the latter, the supply in the metallic reservoir is drawn upon, and as the level of the latter descends, so will the level in the Woulff's bottle. As soon as the obliquely cut-off end of the central tube in the latter becomes exposed, the air space over the alcohol will be set in communication with that in the reservoir, and in consequence of this, alcohol will flow into the Woulff's bottle through the siphon-tube. As soon as the outlet of the central tube is again covered by alcohol, the flow of the latter will cease. The supply of the lamp will thus be renewed periodically until the level of the alcohol in the reservoir becomes equal to that in the three-neck bottle.—*Rep. f. Anal. Chem.*

* * *

**Paraffin**, with a melting point of 130°, is recommended by a writer in the *Provincial Med. Jour.* as a substitute for plaster-of-Paris in surgical dressings. It does not absorb purulent matter like the latter; is lighter, easily managed, and is equally serviceable for splints or spinal jackets.

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* "Ein neuer Extractionsapparat." Von Dr. L. Lewin, Docent der Pharmakologie an der Universität Berlin. 8vo. Halle a. S., 1887. (Received from the author.)

THE

# American Druggist

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## EDITORIAL.

THE leading manufacturers of perfumery are constantly on the watch for new sources of staple aromatics, or for new odorous substances. During the last year or so we have met with numerous statements of new discoveries in both of these directions. The most interesting have been that of a plant in the district of Chirigui, in Costa Rica, having an odor very much resembling that of the *Cananga odorata*, the source of the delightful ylang ylang. The plant is supposed to be a species of *Xylopia* (nat. fam. Anonaceæ), a genus which is characterized by the pungent and aromatic odor and taste of its fruits, seeds, etc. So, for instance, *Xylopia æthiopica* is the source of a peculiar variety of Melegueta pepper. Whether the above-mentioned Costa-Rican species will be able to become a rival of *ylang*, time will show.

Another interesting plant likely to become the source of a valuable perfume is the *Ouco* found by Serpa Pinto, on July 25th, 1878, in his expedition across the continent of Africa. After having passed to the right bank of the Cuchibi, he entered a territory extending to the river Cubangui, which was covered with a dense virgin forest containing, according to Pinto, an extraordinarily rich flora. While passing through the forest he noticed a most agreeable, sweet odor which was found to arise from a tree abundantly growing there. According to his own statement, the fine fragrance of this odor exceeds that of any odoriferous plant growing in Europe. It is called *Ouco* by the natives. Pinto thought it was a kind of *Acacia*. When he exhibited the drawing of the tree and of its flower to a Portuguese pharmacist upon his return to Europe, the latter declared it to belong to the Leguminosæ, tribe Papilionaceae. Serpa Pinto concludes his description with the following words: "This tree, for the superbly fragrant flowers of which many a European lady would pay a high price, was only found in this locality; when I afterwards approached the river Ninda, I searched for it in vain. [The geographical position of the territory alluded to is in lat. 40° 30′ South, and in long. 20° 30′ East of Greenwich approximately.] Subsequently, however, while passing a short distance to the south of the Ninda, he again encountered the Ouco as a "large tree and growing so luxuriously, and so abundantly covered with flowers, that the traveller finds himself for hours in an atmosphere of almost overpowering aroma."

Modern enterprise will probably try to benefit by Serpa Pinto's report. It will not be long before the locality will be visited by agents of some of the houses interested in new valuable plants.

AN interesting subject for investigation by social scientists is the frequent occurrence of poisoning in Great Britain and in England especially. Hardly a medical or pharmaceutical journal comes to hand which does not contain accounts of a number of such cases, and the majority of them seem to be the result of pure stupidity, either inherent or acquired through over-indulgence in beer or liquor. To judge from the observations of travellers and the statements of journals regarding the consumption of alcoholic drinks, it would appear that the majority of the laboring and middle classes of society must be much of the time in a more or less fuddled condition from the alcohol taken in one form or another. The published accounts of poisoning cases would also encourage a belief that carbolic, hydrochloric, and oxalic acids and similarly deadly substances are to be found in nearly every household, and that the common receptacles for them are ginger-beer bottles without labels, broken pitchers, or other household utensils..

The average Briton seems to be a thirsty mortal and inclined to gulp down anything that may by chance come first to hand. The fact that the container is a beer-can or a beer-bottle is, for him, presumptive evidence that its contents are potable.

THE existence of voluminous laws regulating the sale of poisons appears to have little effect upon their presence in the household. The "chemist" is hedged about by restrictions to the sale of poisons, but the oil-man next door may give a pint of oil of vitriol to a child who brings an earthen beer-mug to receive it, and needs to ask no questions.

ANOTHER important feature connected with the question of poison-vending in England is the existence of what is known as a "stipendiary magistrate" whose ideas of the law are well illustrated by the following extract from an editorial in *The Medical Press and Circular:*

> "A druggist was summoned under the Sale of Food and Drugs Act, at the instance of the Health Committee, for having sold tincture of opium which was not of the nature, substance, and quality of the article demanded. The medical officer of health proved that he purchased at the defendant's shop three ounces of tincture of opium. The borough analyst certified that the proportion of opium in the sample was less than one-third of that contained in the tincture of opium of the British Pharmacopœia. The facts were admitted by the defendant, but the stipendiary said that no doubt the action of the Health Committee was very laudable, but he was of opinion that if a preparation contained *any opium and any alcohol whatever* it could legally be sold as tincture of opium. Another shopkeeper was summoned under the same Act for having sold paregoric elixir, which, according to the certificate of the borough analyst, was "wholly destitute of opium, which was the most important ingredient of paregoric elixir." The vendor said that he supplied shopkeepers with the article complained of, so that they might not infringe the Pharmacy Act, they having no license to sell poisons. He could not name any ingredient of a medicinal value that the paregoric without opium supplied by him contained. The stipendiary said the name "paregoric" failed to give him any definite impression any more than soothing syrup. It was pointed out that, for all the defence amounted to, they might simply sell colored water, and call it paregoric. The stipendiary said he did not see that the law prevented it, and dismissed the case."

Making due allowance for lapse of time, the character of Dogberry in "Much Ado about Nothing" would seem to represent the "stipendiary magistrate" of the present day fairly well.

READING between the lines of the above extract, we will observe that shopkeepers who are not licensed to sell poisons *may* sell things called by the same names so long as they are not what they purport to be. On the other hand, a person who *is* licensed to sell poisons *is* liable to prosecution and punishment if he sells things which are not what their names would indicate. Taking it for granted that legislation having for its object the control of the sale of poisons originated with the class who suffer most from the legal restrictions, the pharmaceutical profession of Great Britain is not in a position to be congratulated upon the results of its efforts to aid the public.

Experiments have been made in Java to prepare an extract of cinchona containing all the alkaloids, which is to be shipped abroad and sold to the makers of quinine. This is certainly a step in the right direction, as it will do away with the useless expense involved in the carriage of a large bulk of inert matter.

For the first experiment, 10 kilogrammes of bark were selected, containing fully 6 per cent of alkaloids. By means of quick-lime and extraction with boiling alcohol, a concentrated alcoholic extract was prepared which, by analysis, was found to contain about 60 per cent of alkaloids, the residuary mass being almost entirely exhausted. This extract is provisionally called *Quinium*. It has been sent to the Netherlands for the purpose of ascertaining whether it can be practically used in the manufacture of cinchona alkaloids.

The *Indian Agriculturist* says:

"A local contemporary announces that the Government of Madras is apparently about to withdraw, partially, from competition in the growth of cinchona, and that at the request of the Director of Cinchona Plantations, the Collector of the Nilgiris has been instructed to dispose of the Kalhati Gardens by the end of the year. This is a step in the right direction, and we hope before long all Government cinchona plantations will be disposed of, retaining only such, if necessary, upon which it is intended to conduct special experiments."

The spook of the "artificial quinine" said to have been discovered by Dr. Hewett, and ostensibly supported by the pretensions of the "Atlas Quinine Company" (Creswell, Hewett & Co.), of London, has not yet been laid. We see reports, here and there, which go to show that the company has more to conceal than the pretended process of manufacture. So far we have not found reason to place the slightest credence in the assertions of the company, though we do not in the least doubt that the time is not far distant when artificial quinine will be a regular article of commerce.

The town of Toulouse is about preparing an international exhibition, which will be opened on the 15th of May next. The guaranteed capital is 700,000 francs. Chemists and druggists wishing to exhibit should make their demands to the Maire de Toulouse, when the printed forms and official journal of the exhibition will be sent gratuitously.

Clause 44 of the regulations reads:—Chemical and pharmaceutical products, acids, alkalies, salts of all kinds, sea salts and products from sea water, various productions of chemical industry, wax and fatty bodies, soap, candles, materials of perfumery, resins, tar and bodies derived from tar, varnishes, dyeing substances, simple and compound medicaments of pharmacy.—*Canad. Pharm. Journ.*

*The Canadian Practitioner* says:

> "It may not be generally known that a poultice of digitalis leaves, to cover the whole abdomen, will act both on the heart and kidney in scarlet fever or other conditions, when its administration by the stomach is contra-indicated."

We confess that the thing is novel to *us*. Indeed, we never heard before of a poultice of digitalis leaves being administered by the stomach.

Several of our medical exchanges have lately contained editorial articles on the subject of substitution by apothecaries, which seem to have had their origin in a similar editorial article in the *St. Louis Medical and Surgical Journ.* for March. These writers assume as a fact that such substitutions are sufficiently common to be a source of general complaint on the part of physicians and manufacturers of "specialties."

Without committing ourselves to an indorsement of this assumption, we nevertheless desire to express our unqualified condemnation of any such practice. There is nothing which will so completely destroy confidence in a pharmacist's integrity and so permanently injure his business as a *suspicion*, even, that he will intentionally substitute something else for the *particular* thing demanded; and for this reason alone, to say nothing of the moral principle involved, a pharmacist who will intentionally commit such a fraudulent act had better sell out his establishment and retire from the business while its good-will has still a pecuniary value. It is far more sensible to say, at once, in case the article ordered is not in stock, that he has not got it. The profit which might have been gained is more than counterbalanced by the reputation which will be acquired for honesty.

We remember an account once given us by a physician, of his efforts to secure a quantity of *Clutterbuck's* elaterium for a patient, and of the various ways in which one apothecary after another endeavored to supply something else, until he finally came to one who frankly confessed that he had not got it and, what was more to the point, did not know of any one who had any that was of any value; however, if the doctor was willing to leave the prescription with him he would get some of Clutterbuck's elaterium, if it was to be had, and if he failed he would send the doctor word to that effect. The doctor was so impressed by the apothecary's frankness and honesty that he accepted an article which was not Clutterbuck's, but which was thoroughly reliable and did its work well, and we have reason for believing that many prescriptions from that doctor and his friends have since gone on that apothecary's prescription files as a direct outcome of that interview.

The statement that the article on Fuller's Tablets, published in the January number, would be continued was a mistake; the article, as it stands, contains all the information necessary for their manufacture. Those who have made the tablets on a large scale have acquired skill in certain details which it might be desirable to know, but which we have no right to publish without their authorization. If, however, any of our readers *desire* such additional information, we will gladly undertake to obtain it for them if they will kindly state in what particulars they wish more complete directions.

We may remark that three stages of the manufacture demand special attention. 1. Accurate adjustment of the proportion of the ingredients so that the tablet shall contain a known quantity of the drug; 2. Thorough trituration of the drug with the milk-sugar; 3. Complete desiccation of the tablet after its removal from the mould.

We have learned since the publication of the article, that Mr. John E. Schreck, of the firm of Boericke & Schreck, 234 Sutter st., San Francisco, manufactures an improved triturating machine, and tablet plates of glass, which are thought by him to possess advantages over those made of hard-rubber.

### College of Pharmacy of the City of New York.

The annual meeting of this college took place on March 17th. The following officers were elected at this meeting: *President*, Ewen McIntyre; *Vice-Presidents*, H. J. Meninger, Gust. Ramsperger, G. C. Close; *Treasurer*, David Hays; *Secretary*, J. N. Hegeman; *Trustees*, to serve three years: Gust. Balser, Th. F. Main, D. Peraza, Th. Louis, J. R. Caswell.

The examinations of the junior and graduating classes were held during the week from March 13th to 19th. The practical examination of the senior class in analytical chemistry and in pharmaceutical manipulation had already been completed during the preceding week.

The total number of students in the junior class was 172. Of these, 149 presented themselves for examination, and 126 passed successfully.

The senior class comprised 110 members. Of this number, 2 completed their examination in all branches but pharmacy. Of the remaining 108 candidates, 81 passed the examination successfully.

The commencement exercises will take place at Steinway Hall on Tuesday evening, March 29th, 1887. As we go to press before that date, we anticipate only so far as to publish a list of the graduating class and the prize and honor men.

*Graduates of the Class of 1887*:—Y. J. Wulling, *first prize;* H. F. Koester, *second prize;* A. A. Herzfield, *third prize.*

*Roll of Honor*:—R. Dolmetsch, Ph. Asher, F. A. Roda, F. C. Seither, A. Metz, H. Weller, W. Heuser, H. W. Schimpf, E. Huth, G. A. Schumacher.

*The other graduates are*:—Th. B. Aitchison, J. Alvarado, A. Ammon, F. C. Atwater, L. F. Beagle, J. F. Behrens, E. L. Blanding, J. F. Bruning, H. W. Carr, C. H. Carroll, F. T. Dall, Ch. W. Dietz, R. P. Domschke, J. Duryea, H. F. Eichacker, G. R. P. Ellison, Ch. H. Everest, A. F. Eyssell, O. Eyssell, E. L. Fendler, M. Fleischmann, I. M. Foster, W. George, H. A. Goddard, M. F. Guck, F. Haessig, F. L. Harding, M. Hollander, W. S. Hopkins, H. G. Ihlefeld, A. S. James, Ch. L. Kellogg, L. P. Knapp, P. H. Koechert, W. O. Kolbe, J. I. Laurie, W. Mayerhofer, D. M. McLeod, F. B. Meeker, R. Minrath, A. J. Muldoon, E. Mulvany, Ch. Motschenbacher, A. C. Naumann, H. Ost, J. Ottendorfer, Jr., A. R. Pardington, H. E. Reed, G. G. Reeder, E. Rindermann, E. C. Roller, J. G. Sauer, F. R. Schlesiger, H. Schmidt, M. S. Settle, J. T. Shillinglaw, G. W. Snedeker, J. Stahl, Jr., A. A. Sterne, F. B. Thibon, G. M. Uhlig, J. R. Vahlteich, E. A. Vockroth, J. H. Vogt, H. G. Wenzel, R. E. Wilhelm, Ch. Wilkens, U. B. Woolly.

**Chicago College of Pharmacy.**—Forty-four graduates received diplomas at the twenty-second annual commencement of the college in February.

### N. J. Pharmaceutical Association.

THE N. J. Pharm. Association has leased Washington Hall, Paterson, N. J., for their next meeting, March 25th and 26th. It contains a fine room for exhibits, and the association intends to make this a special feature of their meeting. To this end, they will have the exhibit open not only to the members and visiting pharmacists, but will also arrange for its inspection by the physicians, schools, and the public generally. Space for exhibits may be sesured by addressing C. P. Kinsella, Paterson, N. J., and should be engaged at once, as it is limited. This meeting promises to be one of great interest, and will no doubt be very largely attended.

**Philadelphia College of Pharmacy.**—The sixty-sixth annual commencement of this school was held on the 18th of March, and diplomas were awarded to one hundred and forty-eight candidates.

The twenty-third annual reception by the alumni to the sixty-sixth graduating class of the College of Pharmacy was held on Thursday evening in the hall of the Academy of the Fine Arts, and was largely attended. The introductory remarks were made by Wallace Proctor, the President of the Alumni Association; the annual oration was delivered by Thomas D. McElhenie, of Brooklyn, of the class of '72, and the annual class oration by Walter Adam Smith, of this city. Edward J. Hadfield, of Dodge, Kan., read the history of the class of 1886 and 1887, and William C. Hepler, of Reading, the class prophet, foretold its future. The alumni gold medal for the senior receiving the highest general average was awarded to Olin U. Cassaday, of Alliance O.; the silver medal, or quizmaster's prize, to Ellsworth S. Beshore, of Bethel, Pa., and the testimonial certificate for the junior receiving the highest general average of the class to William Crutcher, of Nicholasville, Ky. The seven prize certificates to the members of the graduating class receiving the highest averages were given as follows: Materia medica, William A. Partee, of Nashville, Tenn.; pharmacy, Addison L. Beck, of Sharon, Pa.; chemistry, Charles A. Bondurant, of St. Louis; general pharmacy, Edgar Breneiser, of Reading; operative pharmacy, John G. Patton, of Youngstown, O.; analytical chemistry, Frank W. Droelle, of Detroit; specimens, Bennett L. Taylor, of Zanesville, O. For the best collection of indigenous plants, Paul Leuschner, of Detroit, was awarded the prize certificate. The programme was interspersed with college songs.

**Illinois Pharmaceutical Assoc.**—A special meeting of the Illinois Pharmaceutical Association was held at Springfield on January 13th and 14th, for the purpose of hearing the report of the legislative committee, who suggested the following amendments to the Pharmacy Law:

1. To pay the expenses of the State Board of Pharmacy, and thus do away with the annual renewal registration fee.
2. To abolish diploma distinctions, so that all persons asking registration in future will be compelled to demonstrate their ability as practical pharmacists.
3. To so amend the pharmacy law that none but registered pharmacists shall be allowed to sell *any kind* of drugs, medicines, or poisons.
4. To give registered assistants the privilege of registering as pharmacists.
5. To exempt pharmacists from jury duty.

In addition to the above, the following were offered by the meeting:

To provide for the issuing of a minor certificate, and separation of the office of Secretary and Treasurer of the Board of Pharmacy.

To empower the Board to elect their Secretary, either from or outside their membership, as in their judgment will be for the best interest of all concerned.

These suggestions were incorporated with the others, and the committee instructed to work for the passage of them together, with No. 2 of the original report, and drop the balance, if necessary, for the success of these three.

All sections of the State were represented, and judging from the meeting and letters received from different parts of the State, the amendments are going through without much opposition.

Fraternally, L. C. HOGAN, *Secretary.*

**Connecticut Pharmaceutical Association.**—The officers of the association for the current year are: *President*, C. W. WHITTELSEY; *Vice-Presidents*, J. O. MAY and J. H. PARKER; *Secretary*, FREDERICK WILCOX; *Treasurer*, L. H. GOODWIN.

The next meeting will be in Williamstown. 260 active members are enrolled and there are over $1,200 in the treasury.

**Cincinnati Drug Clerks' Association.**—The officers elected February 4th were: E. H. W. STUHLHUTT, President; E. NUTTIM, Vice-President: W. SIMONSON, Secretary; O. R. PLATTE, Treasurer.

**The Kansas City College of Pharmacy** has been organized as a department of the University of Kansas City. The faculty consists of J. Schweitzer, Ph.D., as Professor of Pharmacy; R. R. Hunter, as Professor of Chemistry; E. Lanphear, M.D., as Professor of Materia Medica; and F. A. Holton, Ph.G., as Professor of Botany. The first course of lectures was commenced on the 21st of February.

**The Confectionery World**, of London, England, the first number of which is just at hand, is a handsome 32-page quarto, which has its advertisement pages nicely filled with British "ads," and its reading matter with extracts from American sources. Such an admirable combination ought to succeed.

**The Medical Herald**, a new monthly journal to be published in Louisville, Ky., is to have a department devoted to pharmacy, edited by Mr. J. W. Fowler, a manufacturing and dispensing pharmacist of that city.

**Alfred Bishop**, a London (Eng.), pharmacist, who is largely known in this country through his granular effervescent preparations, died on New Year's eve, at the age of 65, from cerebral hemorrhage.

### Note on Cubebs.

IN 1879, a craze originated in America for asthma cigarettes, of which cubebs formed an important ingredient, and which were recommended as a remedy for catarrhal affections. Prior to that period, the use of the drug had been chiefly confined to the treatment of gonorrhœa, though cubebs formed a principal ingredient in some proprietary lozenges. Asthma cigarettes soon became extremely fashionable in America, and a few speculators bought up every parcel of cubebs upon which they could lay hands on the European market, with the result of quickly forcing up the price of the drug 10*l.* or thereabouts. The enormous demand then prevailing for cubebs may be illustrated by the fact that in February, 1880, no less than 737 bags of cubebs arrived at New York in a single shipment.

Stimulated by the high prices prevailing, the production in Java had extended considerably, but by this time the American speculators had obtained a tight grip of the article, and manipulated at will, sometimes flooding the European market with large shipments in order to momentarily depress the values of the drug and secure at a low rate any parcels which second-hand holders might offer. At the same time all sorts of tricks were resorted to in order to keep alive the demand for the article in America; but the asthma-cigarette craze has by this time subsided. Notwithstanding this, the American speculators have continued their game, and as the article is a comparatively small one, they succeed without much difficulty in controlling the bulk of the supply; hence the continued dearness of the drug.

The consumption of the article cannot now be said to be on the increase; in fact, during the last few years, the imports in America have been falling off. At present our stock has been very much reduced, and at the commencement of the month amounted to only 41 bags in the first hand, while from 21*l.* to 23*l.* is quoted for stalky or good genuine berries. In Holland, the imports during 1886 amounted to about 200 bags, less than half of which belonged to the acknowledged genuine variety. The Dutch market is now said to be very bare, the stock at Amsterdam not exceeding 1,050 lbs., 600 lbs. of which are gray berries. If recent mail advices from America can be trusted, the stock at New York is also very low, being estimated at less than 7,000 lbs., or barely sufficent for one month's requirements. . . . A few years ago, a consignment of nineteen bags of spurious cubebs was stopped by the New York custom authorities and destroyed. It was then announced that all cubebs imported into the United States would be subjected to a close examination, but if the parcels which are frequently purchased in London for the alleged purpose of exportation to America are in reality shipped to that country, the vigilance of the American customs' officers must have greatly relaxed of late.—*Chem. and Drugg.*

### Picrate of Ammonium as a Remedy in Malarial Fevers.

H. M. CLARK, M.D., of Amritsar, Northern India, writes to *The Lancet* that during a period of four and a half years he has treated in that unhealthy region over 10,000 cases of malarial disease with this remedy with excellent results. Of 5,000 cases of which records were kept, 9 cases only were not controlled by it, and quinine was resorted to successfully. It was usually given in doses of ⅓ grain to 1⅓ grains, 4 or 5 times daily, in pill, ⅓ grain being a fair average dose. In the majority of cases ⅓ grain, given in the interval, prevented the recurrence of the paroxysm, while in about 20% of cases 2 or 3 attacks followed before the fever ceased. It does not appear to be of use in the remittent type, nor is enlargement of the spleen influenced by it. He summarizes its advantages over quinine as follows: 1. Its comparative cheapness. 2. The smaller dose. 3. Absence of headache, deafness, tinnitus aurium, and disorder of stomach.

**Powdered olive stones** are at present the favorite adulterant of pepper and difficult of detection.

### How to Make Solutions of Corrosive Sublimate Keep.

In these days of antiseptic surgery, it is in many places necessary to keep on hand solutions of corrosive sublimate of varying strength. Very generally some concentrated stock-solution is kept on hand which is diluted according as the circumstances require. The most convenient of these stock-solutions are the following:

1. *Glycerole of Corrosive Sublimate*, 1 grain in 2 minims. This may be made by adding say 16 troy oz. powdered bichloride of mercury to 24 fl. oz. of pure glycerin, contained in a porcelain capsule, and heating the whole on a water-bath, stirring constantly with a glass rod, until the bichloride is dissolved. It will, however, be noticed that there is always a more or less dense white precipitate at the bottom of the capsule, which consists mostly or entirely of mercurous chloride, due to the decomposition of a part of the bichloride into calomel and chlorine, the latter of which unites with hydrogen of the water present in the glycerin while oxygen escapes. This decomposition can be largely prevented by making the solution in the dark. But it is much better to add to the bichloride either chloride of ammonium or chloride of sodium, whereby double salts are formed which are just as antiseptic as the original bichloride, and which are but little liable to decomposition.

We therefore recommend the following method which we have used for years:

| | |
|---|---|
| Bichloride of mercury | 16 tr. oz. |
| Chloride of ammonium | 2 tr. oz. |
| Glycerin | a suff. quant. |

Add the bichloride of mercury in powder, and the chloride of ammonium, to 14 fl. oz. of glycerin previously heated on a water-bath, and continue heating and stirring with a glass-rod until solution is effected. Allow the liquid to cool, then measure it and add enough glycerin to make it measure 32 fl. oz. Color it *pink* with *fuchsine.*

There is no necessity of employing an amount of the alkaline chlorides equivalent to what would be required to form a complete double salt. A fractional amount of this is sufficient. The small quantity of ammonio-mercuric chloride present is capable of keeping the remainder of the mercuric chloride in solution unchanged. Some, however, prefer to employ an amount of alkali chloride fully equivalent to the bichloride. The addition of a little fuchsine to the solution is quite important. Were the glycerole left uncolored, it would be possible to mistake it, some time or other, for plain glycerin. The dangerous nature of the solution is well indicated by the peculiar red tint of the fuchsine. On diluting the glycerole with water, the tint comes out more strongly. Fabrics saturated with it retain the pinkish tint, and this is likewise an advantage, as it enables them to be at once distinguished from plain fabrics.

2. *Alcoholic Solution of Corrosive Sublimate.* Best made of the strength of 1 tr. oz. in 8. fl. oz. To hasten solution, this is best made with the aid of heat, the volume being made up when cold. In this case a decomposition is not to be feared. This ought also to be tinted with fuchsine.

Either of the preceding solutions is diluted, when required, to the desired strength.

Some time ago, E. Mylius also recommended, in the *Pharm. Centralh.*, the addition of chloride of ammonium to the aqueous solution of bichloride, to render it more stable. A correspondent of this journal subsequently objected to the addition, because he had found that when he diluted it with common, or *hard* water, a copious white precipitate of ammoniated mercury was produced. The editor of the journal found that this statement did not apply to solutions made with the ordinary drinking water of the city of Dresden. At all events, no great difference could be detected between the quantities of precipitate gradually formed on diluting the stock-solution with the water of the city service or with well water. But the editor thought the addition of alkali chlorides to be of doubtful propriety, as it was not known whether the double salts thereby produced possessed equal disinfecting powers with the sublimate itself.

In a reply to this, written by Mylius, the latter says, that the precipitate caused by *hard* water was nothing surprising. But the chloride of ammonium was not directly to blame for this. The fact is that *hard* water will cause a precipitate with corrosive sublimate even in absence of chloride of ammonium. There is a difference in the *character* of the precipitates, however: that produced in absence of chloride of ammonium is only oxychloride; in presence of this salt, however, the precipitate contains ammonium. He also suggests that, if chloride of ammonium is objected to on account of its possibly causing the formation of such precipitates, *chloride of sodium* could be used.

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**Indian Hemp**, in doses night and morning of one-half grain, increased, if need be, to a grain, and continued for some time, is spoken of by Dr. Stephen MacKenzie (Lecturer on Medicine at the London Hospital) as the most valuable remedy he has met with in the treatment of persistent headache.—*Br. Med. Jour.*

### Indian Hemp.

The variations observed in the strength of extract of Indian hemp is owing to the use of different kinds of the crude drug. That produced in Eastern Bengal is the best, and of it there are two kinds—the flat and the round ganjah, as stated by Mr. Holmes. These differ considerably in strength; moreover the round is taxed one-quarter more than the flat. The duty on the round is from 35*l.* to 40*l.* per maund, exclusive of the right to sell it, either by wholesale or retail. In connection with this taxation, there is a curious anomaly existing in India, viz., that the yearly returns in Bengal show a consumption amounting to 6,000 maunds, with a tax of 20,000*l.*, whereas in Bombay the consumption is 9,000 maunds with a taxation of only 10,000*l.* The law which imposed the tax was passed about ten years ago, and the difference referred to had been overlooked. These quantities do not represent the total produce of Indian hemp. 2,000 maunds are yearly exported from Bombay to Liverpool and London, duty free, the result being that it can be bought in London at one-twentieth the price at which it is sold in Bombay. The wonder is what becomes of it, and it is presumed that it is reshipped for consumption in India after escaping the customs. The wild variety known as *bhang* differs from the cultivated *ganjah*. It is much weaker, and is used for the preparation of an intoxicating liquor and sweetmeats. The liquor is called *hasheesh*, this word being the source of our word assassin, a corruption of the native word "*hasheesheen*," applied to the intoxicated and homicidal persons who drink the liquor. The sweetmeats are made by digesting the *bhang* in *ghee*, a kind of butter, the mixture being afterwards made into a suitable mass.

*Ganjah* is smoked, never eaten. The drug is placed in a pipe, ignited in a certain way, and two or three whiffs is all that is necessary to make a man delightfully drunk. *Bhang* is smoked in a different way. It is placed on a fire in the middle of a room, in which a number of persons sit, and as the fumes fill the apartment all in the room get drunk together.

The resinous exudation from the stem of the plant, known as *churras*, is collected in the following manner: A number of men are stripped of the little clothing which they wear, their bodies well oiled, and they are made to run through the hemp fields in all directions. As they press their way through the stems, their bodies become covered with the resin. They are then conveyed to headquarters and scraped. Another substance, termed *mummia*, is a much more nasty preparation. This is referred to in the last edition of Johnston's "Chemistry of Common Life." The preparation is made in Nepaul. A certain plant is administered to miserable wretches, and it produces upon them a loathsome eruption. It is this eruption which is scraped off their bodies, and used like *ghee* along with *bhang*.

It is essential for the production of ganjah that the fields should be kept free from male flowers, otherwise a single male flower present in a field will, by fertilization, convert it into *bhang*. In cultivated fields of the hemp, the male flowers are separated by native doctors, who are most proficient in their work. When the plant consists of only a short stem one and one-half feet high, these doctors, after striking a bargain, and singling out every male plant, cut it down and leave not a single one standing. Attempts have been made to get at the explanation of this wonderful skill, but even with the help of a microscope the author had failed to find any satisfactory point of distinction between the male and female plants at this point of growth. The flower heads are prepared for market as follows: A hollow space is made in the earth, and the freshly-pulled heads are placed in it, the work-people then roll it about with a shuffling motion of their bare feet, the amount of pressure which the heads are subjected to determining the form of the product and strength.

It may be remarked, incidentally, that not much is to be learnt by associating with the native doctors. We know all about the many hundreds of drugs of India, and there are not more than forty or fifty of them of any real use. Moreover, the natives keep the drugs in their shops until they are perfectly rotten and worm-eaten, and as we are dependent upon them for many of these drugs that fact accounts for numerous specimens in the Indian Court being in a bad condition.—Dr. Geo. Watt, Commissioner of the Indian Economic Court of the Colonial Exhibition, in *The Tropical Agriculturalist.*

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**Turpentine Liniment.**—Michael Conroy says that the B. P. formula for this liniment results in a liquid with some manipulators, with others it is jelly-like. It consists of 2 oz. soft soap, 2 fl. oz. distilled water, 1 oz. camphor, and 16 fl. oz. oil of turpentine. The soap being mixed with the water and the camphor dissolved in the turpentine, the two fluids are rubbed together until thoroughly mixed. Experiments show that the quality of the soap and oil have little to do with the result and that a jelly-like product should follow the pharmacopœial process. When a liquid liniment is desired, the quantity of water should be doubled.—*Chem. and Drugg.*

PROF. REMINGTON says that the best vehicle for menthol for outward application is oleic acid, half an ounce of which will dissolve 200 grains of menthol in a test-tube with the aid of heat.

**Ethereal Solution of Tannin,** of syrupy consistence, is said to immediately soothe the pain of burns, and, as it dries rapidly, it forms a pliable, non-elastic coating which is preferable to collodion, as it does not shrink or become stiff.

**Action of Pilocarpine on Milk Secretion.**—Mr. Chéron has had successful results from the hypodermic use of nitrate of pilocarpine as a measure for re-establishing the secretion of milk. Five centigrammes are to be injected once daily, and should not (to be successful) cause diaphoresis. No bad result to nurse or infant has been observed.—*Br. and Col. Drug.*

**Mullein Oil.**—This oil is highly spoken of by American practitioners as a remedy for otorrhœa and deafness. It is prepared by digesting mullein flowers in oil contained in a well-closed bottle, and exposing it to the action of the sun for three or four weeks, then draining off the brown oil which is formed. A few drops of the oil placed in the ear relieves earache in less than fifteen minutes.—*Chem. and Drug.*

**Artificial Honey.**—Lyle & Fastig, of London, have obtained a patent for making artificial honey by adding to a mixture of equal parts of dextrose and levulose a solution of cane-sugar and a small quantity of butyric ether; heat the mixture until it becomes homogeneous, and obtain the granular consistency by the addition of some crystallized honey." It is to be hoped that the mixture will be sold for what it is.—*Chicago Grocer.*

**Lanolin as an Excipient for Mercurial Ointment.**—C. S. Hallberg found that 5 grains of mercury, triturated in a mortar with 1.5 grammes of purified wool fat, was completely extinguished in 10 minutes. 3.5 grammes of petrolatum, then added, gave a product containing 50 per cent of mercury so finely divided as to be invisible by a magnifying power considerably greater than required by the U. S. P.

**Morphine and Sulphuric Acid.**—It is often stated that morphine is soluble in cold concentrated sulphuric acid without color. Hesse points out (*Annalen* 234, 255) that this is not correct, but that the solution has a very faintly red tint. The U. S. Ph. is therefore nearly correct, as it recognizes the appearance of reddish tint after some time. But it was not considered as being an inherent property in morphine to produce this tint.

**Preservation of Flowers.**—In a well-corked bottle dissolve 6 drs. of coarsely cracked, clear gum copal mixed with an equal weight of broken glass, in 15½ oz. (by weight) of sulphuric ether. Soak the flowers in this for a few minutes, and on removing them slowly allow them to dry in the air for ten minutes. Repeat this four or five times. Thus treated, flowers will retain their brilliancy and freshness for a long time, if guarded from too much handling.—*Chronique Indust.*

**Chloroform as a Hæmostatic.**—Dr. Ipaak, of Brussels, has found a mixture of 2 parts of chloroform and 100 parts of water to be an excellent hæmostatic in bleeding of the gums after the extraction of teeth. Probably it would be serviceable in other cases where only smaller vessels are ruptured. Chloroform requires about 300 parts of water for solution; hence the above-named proportions of water and chloroform will not form a clear solution, but rather a mixture, which will have to be shaken up when it is required to be used.

**Simple Burette Clamp.**—A correspondent of the *Science News* suggests the following simple burette clamp: Take two spring clothes-pins and fasten them together, with their jaws in opposite directions. One pair of jaws secures the clamp to the stem of a retort stand, the other pair holds the burette or other articles. The jaws can be enlarged for the heavier burettes without enlarging the combination. It is also a convenient contrivance to hold a pipette which is repeatedly in use. The device also serves to hold a small funnel in filtering.

**Constituents of Ergot.**—A prize of 600 francs has been offered by the *Académie Royale de Médecine de Belgique* for the best reply to the following query:

Determine the chemical composition of ergot by new experiments.

Replies, which must be written either in Latin, or French, or Dutch, must be sent in by February 1st, 1888. (We can give more details to any one among our readers who should desire to compete.)

**An Adulteration of Saffron** is reported from abroad consisting in coloring the exhausted stigmas with aniline. The fraud may be easily detected by the tint given to the watery infusion which lacks the characteristic saffron-yellow hue, as well as by the absence of the odor.

**Compositions for Laboratory Floors.**—1. Mix together boiled linseed oil and finely powdered coal, to produce a substance of the consistency of paint. Apply a coat of this to the floor. 2. In a metal pot make a mixture of 40 parts of chalk, 50 of resin, 4 of linseed oil and 1 of native cuprous oxide. Then stir in, carefully, 1 part of sulphuric acid. A sort of mastic results, which may be applied hot, and, when dry, forms a varnish of stony hardness.

**Non-Existence of Hæmidin.**—Some time ago, E. Dannenberg announced the discovery of a new crystalline constituent of blood, which, according to him, could be easily obtained in recognizable crystals even when all other methods of recognizing blood failed. In the "extraction" of this substance, which he called *hæmidin*, Dannenberg employed sulphide of ammonium. It has now been shown by Dr. Karl Amthor that these crystals can be obtained from the reagents employed by Dannenberg even when blood is absent. In fact, the crystals turned out to be nothing more or less than *sulphur.*

**Elimination of Fluorine by means of Electricity.**—H. Moissau, of Paris, submitted anhydrous hydrofluoric acid to electrolysis by 50 Bunsen elements in a U platinum tube at 50° C. Hydrogen resulted at the negative pole. At the positive p. a continuous current of gas was given off which was completely absorbable by mercury, producing yellow protofluoride. Water was decomposed into ozone. Phosphate burned rapidly in it, producing fluorides. Sulphur heats and fuses. Carbon is unaffected. With potassium chloride it produces cold and liberates chlorine. Crystallized silicon washed with nitric and hydrofluoric acids takes fire by contacts with the gas and produces silicon fluoride. The iridized platinum positive pole becomes heated to redness.—*Comptes Rendus.*

**Cutting Glass Bottles.**—The editor of the *Western Druggist* remarks that in cutting bottoms off bottles which are to be used as percolators, etc., a cotton or woollen thread of medium thickness is saturated with alcohol and wrapped loosely around the bottle at the place of desired fracture, a file mark having first been made. The bottle being held horizontally the thread is ignited, and after combustion has ceased and while the glass under the cord is still hot the bottle is immersed in cold water. The resulting fracture will follow the line of the file mark. The edge may be ground on a plane of glass with sand, camphor, and turpentine.

**The Quality of Quinine formerly and now.**—In a paper on the quality of quinine originally manufactured by the discoverers of this alkaloid, communicated to the Pharmaceutical Society by Dr. de Vrij (according to the *Chem. and Drug.*), the author makes some interesting statements which help to explain the comparative purity of the commercial quinine manufactured years ago, and the increased percentage of other alkaloids occurring at the present day. He says:

"Since the discovery of quinine in 1820, chemistry and its application to chemical industry have made immense progress, and we should consequently have the right to expect that the quality of the actual quinine sulphate was at least as good as in the time of the discovery of quinine. Thanks to the kindness of M. Genevoix, director of the Pharmacie Centrale de France, I was put last May in possession of a specimen of Calisaya bark from the collection of Pelletier himself, from which I obtained 6.4 per cent of quinine tartrate. The optical observation proved that it contained 95.4 per cent of quinine tartrate and 4.5 per cent of cinchonidine tartrate, which alkaloid was unknown in Pelletier's time. Therefore the quinine sulphate manufactured from such barks *could not have contained more than 3.26 per cent of cinchonidine sulphate.*

"Consequently, instead of making progress, we have retrograded, for the actual commercial quinine sulphate contains generally more cinchonidine than that manufactured by Pelletier.

"The cause of this fact is that calisaya bark (*Quinquina Jaune*) was originally exclusively used for the manufacture of quinine sulphate till about 1849, as the first barks from New Grenada were introduced into Europe in 1848 by Auguste Delondre, one of the partners of the firm, Pelletier, Delondre et Levaillant. Many of these barks contained, besides quinine, appreciable quantities of cinchonidine, the consequence of which was that the quinine sulphate manufactured from these barks contained more cinchonidine than that formerly prepared from calisaya bark. This amount of cinchonidine in French quinine sulphate was the cause that my lamented friend, Dr. C. Zimmer, the well-known quinine manufacturer, issued in 1861 a circular to his customers to warn them against this quinine sulphate, which he supposed to have been mixed with cinchonidine sulphate. This, however, was not so, for the presence of such a large quantity of cinchonidine was only the consequence of the use of barks containing much cinchonidine besides quinine. Zimmer's circular contains the following sentence:

"'We know still little about the therapeutic action of this alkaloid (viz., cinchonidine) but whatever results the impending experiments may afford, such voluntary substitution is under all circumstances indefensible, and makes honest competition almost impossible.'"

### Etching Ink for Glass.

EUGEN DIETERICH gives the following directions:

Mix intimately, in a porcelain mortar, 10 parts each of fluoride of ammonium and of sulphate of barium, place the mixture into a platinum or lead-vessel [a piece of sheet-lead turned up at the edges will answer well] and make a paste by stirring in 9.3 parts of fuming hydrofluoric acid [the stirring may be done with platinum or with a thin strip of sheet-lead]. Dip a steel pen into the paste and write with it upon the glass. After about half minute wash off with water.—*Pharm. Zeit.*

**Improvement in the Test for Glucose.**—When grape-sugar is tested for by Fehling's solution, it happens not unfrequently that the separated cuprous oxide remains suspended in the liquid for a long time. A rapid precipitation may be brought about by adopting the recommendation of S. Munke, namely, to add to the liquid 3 to 5 drops of a 15-per-cent solution of chloride of calcium.—*Centralb. f. d. Med. Wissensch.*

**Sugar in Cement.**—A correspondent of the *Madras Mail*, on the basis of a number of trials of a mixture of sugar with lime and white of egg, as a cement for porcelain and marble, suggests the use of simple syrup with plaster-of-Paris instead of water, in the use of plaster as a cement.

**Guarana: Method for its Assay and the Assay of its Fluid Extract.**—(H. W. Snow.) The disadvantage of the two days' time consumed in the mode of assay recommended by Feemster and Green, based upon E. S. Wayne's method of extracting caffeine (*Amer. Jour. Pharm.*, 1877, p. 337), leads the author to recommend the method for assaying nux vomica by A. B. Lyons, (*Drug. Cir.*, 1886, p. 137). 5 Gm. of drug, in a 100 to 140 C.c. flask, is shaken, after closure, with 44 C.c. of chloroform, and then are added 6 C.c. of a mixture of 6 volumes of alcohol and 1 vol. stronger water of ammonia; again shaken and allowed to stand, with occasional shaking, during several hours, or at rest over night. Filter rapidly through a 4-inch filter paper, using a vessel graduated to 44 C.c. as a receiver. When the mark is reached, evaporate the chloroform and treat residue with a little water, and filter first through cotton and then through paper, the wash water from cotton filter being used for washing the paper. Continue washing until no precipitate forms with phosphomolybdic acid. This aqueous liquid is washed in a separator, with successive portions of chloroform (twice, usually), until phosphomolybdic acid gives no deposit. Evaporate chloroform from a weighed beaker and dry the residue at 106° C. for half an hour. The weight in grammes, multiplied by 25, gives per cent of alkaloid.—*Western Druggist.*

Another method, more economical of time and chloroform: To 15 C.c. of fluid extract are added 30 C.c. of distilled water, in a small flask, and shaken with 2 Gms. of slaked lime. Filter through 4-inch paper (dry). 15 C.c. is neutralized with dilute sulphuric acid (avoiding excess). Evaporate to dryness; digest residue with a little water, filter, wash until no precipitate is given by phosphomolybdic acid. Render alkaline with ammonia, wash thrice with chloroform, evaporate—and so on as in former process.

**Huamanripa** is a Chilian expectorant derived from a plant belonging to the genus *Cryptochæthos*, and found only on the mountain slopes. It flourishes during the rainy season, and then disappears with the exception of the root. It is aromatic and resinous. Drying causes a loss of the greater part of its essential oil, which may be collected by distillation with water. After the essential oil has been extracted, the resin possesses a special aroma. Infusions of 25 parts by weight in 1,000 of water are bitter and apt to produce nausea in larger doses unless brandy is added. In small doses it stimulates the heart and increases secretions, especially the salivary. Large doses cause vomiting, perspiration, depress the heart's action, respiration, and temperature.—*Rép. de Pharm.*

**Bulletin of Miscellaneous Information** is the title of an occasional publication by Mr. W. T. Thistleton Dyer, the Director of the Royal Gardens at Kew, England. It is intended for such notes on economic products and plants as come to the attention of the Staff of the Royal Gardens, and are too voluminous for insertion in the annual report. Eyre and Spottiswoode, of London, are the publishers.

**Pain in the Stomach** after taking food, especially in cases of cancer, is stated to be relieved by a dose of the following mixture: Tinct. conii, tinct. hyoscyami, ol. anisi, of each ℥ij.; tinct. gentianæ, ad ℥i.; dose, ten to thirty drops after meals.—*Chem. and Drug.*

**Kola Nuts.**—According to an analysis of kola nuts made by the consulting analyst of the Royal Commissioners for Victoria, Fiji, Mauritius, etc., kola nuts (from *Sterculia acuminata*) contain, among other constituents, caffeine, 2.710; theobromine, 0.084; bitter principle, 0.018; oil and fat, 0.815; resins, 1.012; starch, 28.990; ash, 9.722; and other usual constituents.

## QUERIES & ANSWERS.

*Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer, for the information of the editor, but not for publication.*

No. 1,898.—**Channing's Solution of Iodohydrargyrate of Potassium** (H. D.).

The formula for this solution is to be found in Dick's formulas under the title of "Channing's Mixture," where it is stated to consist of three and one-half grains of iodide of potassium, four and one-half grains of biniodide of mercury, in one ounce of distilled water.

No. 1,899.—**Phosphorescent Show-Cards, etc.**

The following inquiry by one of our subscribers, which we cannot at this moment answer, may elicit the desired information from some of our readers:

> "Can you tell me where I can buy something to put on the outside or inside of my glass door, telling the public to 'press the button,' something in the order of a *face* with the above inscription, or embossed *faces* of a *phosphorescent* character? I have seen them advertised, but do not remember where."

No. 1,900.—**Poultry Food** (Altoona, Pa.).

> "Please to publish the formula for 'Rittenhouse Poultry Powder' (not now in the market), or of some other good and reliable poultry food, something for the general health of poultry and a preventive of cholera and croup."

We do not have the formula of the poultry powder above mentioned at hand. Perhaps some of our readers can supply it.

No. 1,901.—**Lactocrite** (Subscriber).

In reply to our correspondent who desires to know what lactocrite is, and what the method of application to "lacto-*i.e.*, milk" may be, we would refer him, among other sources of information, to *The Analyst* (London), Jan. 1887. We may briefly state that the lactocrite is an instrument by means of which a definite quantity of milk, inclosed in a horizontal, flat, disc-shaped vessel, may be put in very rapid rotary motion, in consequence of which the butter-fat is made to unite in a mass which separates from the liquid by the rapid centrifugal motion (about 6,000 revolutions a minute). As the presence of solid casein in the whey would interfere with the separation of pure butter-fat by this operation, it is necessary to get the casein in solution, which is done by first boiling the milk with an excess of acetic acid.

No. 1,902.—**Carbon Paper** (E. J. A.).

The formula printed in our January number, on the advertisement pages, is probably as good as any other. In order to put it in a more permanent place, we reprint it here.

Take of clear lard 5 oz., beeswax 1 oz., Canada balsam 1/10 oz., lampblack q.s. Melt by aid of heat and mix. Apply with a flannel dauber, removing as much as possible with clean woolen rags.

In addition, we would say that the preparation ought to be applied only to *one* side of fine or thin writing paper. Also, the other published formulæ omit the wax and Canada balsam. Some direct lard and others pure, fresh tallow. We think that a good result can be obtained also by using vaseline or some other petroleum ointment for a base; but we have not tried this. When applying the mass, it should be thoroughly rubbed in, and all excess carefully rubbed off.

There is no patent on this article, so far as we are aware.

No. 1,903.—**Soft Rubber Cones** (P.).

> "I wish to make one or more soft rubber cones of say two inches in length with a small hole through endwise. Can you inform me, through your valuable journal, how to proceed to make the mould and to melt the rubber?"

We fear that any explanation we might give in these columns regarding the manipulations and processes involved in obtaining the desired object would be insufficient to insure success. The fact is, that articles of the kind desired cannot well be made on the small scale. It is much more easy to make *hard* vulcanized rubber articles singly, than soft ones. Any good dentist can give you some practical hints regarding the general outlines of the process. We would advise you to have those rubber cones made at regular rubber works, which would insure their proper quality and correct shape better than could be expected were you to try the experiment yourself. If you wish to post yourself as to the methods of manufacture, we cannot do better than to refer you to the useful practical work of Raimund Hoffer, "Kautschuk und Guttapercha" (8vo. Wien, Hartleben; price, about $1.50) which you may obtain through any importing German bookdealer.

No. 1,904.—**Leather Cement** (J. D. C.).

This correspondent wants a formula for leather cement which will form a clear solution. He states that he used carbonate of lead for clarifying it, but he finds this to require a long time, and even then it does not produce a clear solution. This leads us to surmise that he dissolved gutta-percha in chloroform or bisulphide of carbon, and followed the process of the U. S. Ph. in clarifying it. If we are correct in our surmise, we would suggest that he employ a considerable excess of the solvent, part of which may be advantageously replaced by benzin. A dilute solution is quite easily filtered. The excess of the solvent may then be recovered by distillation. Of course, proper precautions must be taken to guard against loss by evaporation during filtration. If our correspondent will send us more exact details regarding the nature of the materials he experimented with, we may perhaps be able to give more information.

No. 1,905.—**Barium Manganate** (G. H. H.).

Barium manganate may be prepared in various ways. On the large scale it is best prepared by heating the black oxide of manganese with an excess of barium hydrate and some barium nitrate in an open hearth, with access of air, until the mass is melted. The reaction takes place between three molecules of binoxide of manganese ($MnO_2$) and one molecule of barium hydrate ($BaHO_2$). Allowance must be made for the impurities in the crude binoxide of manganese. Another method is to heat a solution of manganate of potassium (*not* permanganate) to boiling and precipitating it with a hot solution of chloride of barium.

You will find methods of preparing the salt in *Journ. de Pharm.* [3], vol. 46, 344; *Bull. de la Soc. Chim.* [2], vol. 5, 477; *Chemisches Centralbl.* 1873, 737, *ibid.*, 1875, 568; and elsewhere. All of these works may be consulted by you, if you apply at the Boston Public Library or the libraries of Harvard University.

Regarding the application of this salt (by Kastner) to the bleaching of glue, we have no information available. But you will probably find references to it by consulting the current literature on technology. Look over the index of the several annual issues.

No. 1,906.—**The Bichromate Test of Olive Oil** (Analyst").

Our correspondent desires us to inform him what may be the "bichromate" test for olive oil. We only know of one, that of A. Andoynaud, which has been published in 1885 (in *Comptes Rend.*, 101, 732). It is as follows:

Into a graduated test-tube, 15 Cm. (6 inch.) in length, and 1.5 Cm. (⅝ inch.) diameter, pour 2 C.c. of the olive oil to be examined, add 0.1 Gm. of powdered bichromate of potassium, shake a few minutes, and then add enough nitrosulphuric acid [a mixture of nitric and sulphuric acid] so as to make 4 C.c. in volume. Shake again, whereupon the liquid will assume a brownish-red color. After allowing it to be at rest for one or two minutes, add enough common ether (sp. gr. 0.724) to make the volume up to 5 C.c. After again shaking, the liquid will separate into two layers; shortly afterwards it will effervesce quite energetically, and nitrous fumes will be given off. When the reaction is terminated, the olive oil will swim on top, and will have a green tint, if the oil was pure. If, however, the color is greenish-yellow, yellow, or even reddish-yellow, the oil contains more or less of a foreign oil mixed with it. These tints may be better recognized by adding water up to 10 C.c.

No. 1,907.—**Elixir of Phosphate of Iron, Quinine, and Strychnine.**

The formula of the New York and Brooklyn Formulary, which has been recommended to be introduced into the National Formulary, has given general satisfaction, though there are experiments at present being made which will probably simplify the formula considerably. The following is the formula:

| | | |
|---|---|---|
| Phosphate of Iron (U. S. 1880) | 256 | grs. |
| Hydrochlorate of Quinine | 128 | " |
| Sulphate of Strychnine | 1¼ | " |
| Aromatic Spirit (N. Y. & B. F.) | 6 | fl. oz. |
| Water | 4 | " |
| Syrup | 6 | " |
| Aromatic Elixir (= Elixir Simplex, N. Y. & B. F.) enough to make | 16 | " |

Dissolve the sulphate of strychnine and the hydrochlorate of quinine in the aromatic spirit, contained in a flask, by the aid of a gentle heat (by placing the flask in hot water and shaking). Dissolve the phosphate of iron in 4 fl. oz. of hot water, in a capsule, add the syrup and heat nearly to the boiling point. Then pour into this hot mixture all at once the hot solution of the alkaloids, and shake well immediately. When cold, add enough aromatic elixir to make 16 fl. oz., allow to stand for 24 hours and filter.

For filtering this elixir, use a plaited Prat-Dumas filter, placing between it and the funnel a thin layer of clean, loosely-picked tow, or use a filter frame such as is to be had in the market, for the purpose of keeping the filtering surface from being glued upon the glass of the funnel.

No. 1,008.—**Essence of Jamaica Ginger** (D. W. B.).

We can recommend the formula given by Mr. L. T. Stevens, in a paper read at the last meeting of the Am. Pharm. Association. It is as follows:

| | |
|---|---|
| Fluid Extract of Ginger | 16 fl. oz. |
| Powd. Pumice Stone | 4 av. oz. |
| Water | 32 fl. oz. |

Pour the fluid extract into a bottle and add to it the pumice stone. Shake well occasionally during several hours. Then slowly add the water in portions of about 4 fl. oz., shaking briskly and often, and allowing to subside in the intervals. Continue this during 24 hours, filter, and pass enough water through the filter to make three pints, or until the three parts of partly alcoholic liquid originally mixed are passed through without allowing much water to pass. If the filtrate is not quite clear, shake it again with a little pumice stone or clean talc and filter again.

It is highly probable that some of the popular essences of ginger of the market contain something besides the ginger to improve and fortify their taste. What this substance is—possibly there is more than one—we have not learned, nor had we time to make experiments regarding it. On theoretical grounds it seems probable that quillaia may play a rôle in the compound. We would suggest that you try a very small proportion of a very weak tincture of soap-bark. Possibly this may help to take up more of the flavoring principle than would be the case otherwise. However, if it at the same time dissolves too much of the pungent resin, it will probably be objectionable.

No. 1,909.—**Detection of Mercury in Urine** (Supplement to answer to Query 1,874).

From a paper by A. Wolff and J. Nega in the *Deutsch. Med. Wochensch.*, 1886, No. 1,506 (also *Zeitsch. f. Anal. Chem.*, 1887, 116), the following process, being an improvement upon that of E. Ludwig and P. Fürbringer, appears to yield the best results.

Heat the urine after addition of chlorate of potassium (about 5 Gm. per liter) and hydrochloric acid upon the water-bath until it is colorless, then for two or three hours longer until the chlorine is dissipated and the urine is contracted to one-half or one-third its volume. Next, hydrosulphuric acid is passed through the urine for two or three hours, and the latter then set aside for twenty-four hours. The precipitate is filtered off, and the filter with precipitate treated with aqua regia. This solution is evaporated to a doughy mass, and then mixed with water to measure about 300 C.c. Into this solution are placed three or four strips of thin sheet-copper (5 *mm.* broad and 8–15 *cm.* long), previously ignited in hydrogen, the liquid then heated to 176° F. and kept so for some time. The strips of copper are then washed with solution of potassa and absolute alcohol, and rubbed with blotting paper until the latter cease to become soiled. They are then dried at about 173° F., folded up and introduced into glass-tubes. drawn out to a capillary at one end, while the other is fused up. On heating the wider portion containing the foil, the mercury is driven over into the capillary where it condenses. (This portion of the process is like that published in previous reply to query 1,874). On conducting the vapor of iodine over it, the characteristic red mercuric iodide will make its appearance.

No. 1,910.—**Solution of Bromide of Arsenic** (Ontario).

This correspondent says:

> "Some time ago I ordered some bromide of arsenic, intending to get what I had previously had, viz., a *solution of bromide of arsenic*, a preparation that is highly recommended in medical journals for diabetes. Instead of receiving the solution, I got the salt in small fine crystals. Can you through your columns inform me what is the solvent used and what is the strength of the above solution."

The preparation you wanted is known as Clemens' solution of bromide of arsenic. We have published the formula several times. It is as follows:

| | | |
|---|---|---|
| Arsenious Acid, powd | 73 | grs. |
| Carbonate of Potassium | 73 | " |
| Bromine | 146 | " |
| Water, enough to make | 16 | fl. oz. |

Boil the arsenious acid with the carbonate of potassium and 10 fl. oz. of water until dissolved. When cold, add enough water to make up the volume to 14 fl. oz. Then add the bromine, and make up with water to 16 fl. oz. Agitate several times daily during a week; then set it aside until colorless, which will require several weeks, when it will be ready for use. Keep in a cool, dark place.

You cannot obtain the same product by dissolving bromide of arsenic (usually $AsBr_3$) in water or any other solvent. Water decomposes the salt, producing arsenious and hydrobromic acids. But these are not in the same proportions as in the mixture described above.

Experiments have been made by some of our medical friends, to ascertain whether a preparation obtained in this manner from the bromide of arsenic will not answer equally well as Clemens' original solution. The results, however, were not very satisfactory. Indeed, it is not by any means settled, whether Clemens' original solution is really such an efficient remedy in diabetes as it has been asserted to be.

### No. 1,911.—Cement to mend Glass, China, etc.

We take the following from our files:

1. Add ½ pint of vinegar to ½ pint of skimmed milk. When the curd has separated, pour off the liquid and wash the curd with water until it is free from acid. Next add to it the white of five eggs, and beat it thoroughly to make a perfectly smooth mass. In this condition it may be kept for any time unaltered, if ether is poured upon it in a vessel or bottle which can be tightly stoppered. When a portion is wanted for use, it is taken out, the ether allowed to evaporate, the mass mixed quickly with finely powdered quicklime to make a paste, and this is applied quickly to the moistened and warm edges of the broken articles, which must be firmly pressed together so as to squeeze out the excess of the cement, and kept pressed together until dry.

2. Take casein, free from fat, and washed until no longer acid. Fill a bottle with it up to one-fourth of its height with the still damp casein. Then completely fill the bottle with silicate of soda solution, and shake frequently until the casein is dissolved. This cement is said to be very strong.

3. Soak one ounce of best carpenter's glue, broken in small pieces, in cold water until it is soft; then pour off the excess of water, melt the glue by heat and add to it 4 fluid ounces of acetic acid. When thoroughly mixed, transfer to small vials. It needs only a little warming to be ready for use. Some recommend the addition of a small proportion of alum (about 15 grains for every troy ounce of glue).

4. Knafel's Liquid Glue is prepared by soaking 60 parts of carpenter's glue in 100 parts of water for several hours, then adding 30 parts of pure 25% hydrochloric acid, and 15 parts of sulphate of zinc, and digesting the whole on a water bath for 12 hours.

We cannot publish the formulas of the commercial liquid glues or cements which you inquire about, as we are not in possession of the secret, nor would we be likely to obtain the permission of the owners.

### No. 1,912.—Unofficinal Fluid Extracts (S. K.).

"Can you tell me where I can find formulas for making Fluid Extract of Cascara Sagrada, Compound Fl. Ext. of Cinchona, and other non-officinal fluid extracts?"

There is no work which is likely to give you working formulas for every conceivable fluid extract. By consulting the various formularies that have been published from time to time you will obtain formulas for one or the other. It should, however, not be forgotten that many of these formulæ are based on the sole authority of the author of the formulary, and not a few have been worked out at the desk with pen and ink, instead of in the laboratory by practical experiment. It is not difficult for an observing and moderately skilled pharmacist to devise a formula for any kind of fluid extract that is capable of being prepared. The whole difficulty lies in the choice of the proper menstruum. By consulting the statements of authorities (for instance, of the dispensatories) regarding the important constituents of the several vegetable drugs, it will be possible to select a menstruum capable of dissolving these out, and keeping them in solution. The more resinous a drug is, or the more volatile oil it contains, the more alcohol will be required in the menstruum. If the mucilaginous, or water-soluble portions are the more active constituents, less alcohol will be required. In many cases the addition of a small proportion of glycerin will prevent subsequent precipitation. Regarding the two fluid extracts mentioned in the query, we will append brief directions:

1. *Rhamnus Purshiana* (so called *cascara sagrada*). This is very resinous, the resin being of some importance. Hence the menstruum requires to be rather alcoholic. It may be prepared by mixing 10 measures of alcohol with 6 of water; or the menstruum recommended by Vogeler may be used (Proc. A. P. A., vol. 32), viz., alcohol 8 fl. oz., water 5 fl. oz., glycerin 3 fl. oz. Of course, the mode of preparation is the same as that of the officinal fluid extracts.

2. *Compound Fluid Extract of Cinchona.*—Regarding this you will find some data by Dr. E. R. Squibb in a paper contained in the *Proc. Am. Pharm. Assoc.*, vol. 26, p. 753, in which it is stated that the ingredients should be reduced to the fineness of a No. 40 powder, that the best menstruum is a mixture of 3 parts, by weight, of alcohol, and 1 part, by weight, of glycerin. From this may be reduced the following working formula, using for the time being, the troy-ounce and fluid-ounce as units:

| | |
|---|---|
| Red Cinchona | 160 tr. oz. |
| Bitter Orange Peel | 128 " |
| Serpentaria | 32 " |

Reduce to a No. 40 powder, moisten with a mixture of glycerin and alcohol as before described, and proceed in the usual manner.

Dr. Squibb makes a compound fluid extract of cinchona, from *yellow* bark and the officinal aromatic powder. Compare *Am. Journ. Pharm.*, 1867, 523.

Much information regarding both officinal and unofficinal fluid extracts may also be obtained by consulting the volumes of *Proceedings of the Am. Pharm. Assoc.* See especially the collective Index in vols. 19, and the very excellent one in vol. 32. The latter will be found particularly useful.

### Formulæ Asked For.

1. *Warner's Safe Kidney Cure.*—We have received the following communication from one of our friends:

"While not claiming that the following *is* the genuine article, yet it would puzzle any one to tell the difference:

| | |
|---|---|
| Liverwort | 1 ℥ |
| Nitrate Potassium | 320 gr. |
| Water | q.s. |
| Alcohol | 2 fl. oz. |
| Glycerin | 1½ fl. oz. |
| Ess. Gaultheria | ♏ 40 |

Infuse the liverwort with 1 pint of boiling water. Strain and dissolve in it the nitrate of potassium. When cold, add the alcohol, glycerin, and essence of gaultheria, color, and make up the volume with water, if necessary, to 1 pint."

Under "essence" of gaultheria a solution of the essential oil in alcohol is evidently meant and not the pure oil itself.

2. *Kaskine.*—It had been conclusively shown, shortly after this nostrum came out—which is announced as being made from "pure bitumen"—that it consisted of nothing else than ordinary sugar in granules. Since the exposure, however, the manufacturers appear to have profited by the lesson they received, and now they mix with it a minute quantity of something else. According to Prof. F. B. Power and Dr. B. F. Davenport (as reported in the *Pharm. Rundschau*) this is at present *quinine*, about 1 part by weight in 1,000 parts of the finished preparation. A well-known chemist of this city has recently supplied the company with a testimonial, in which he certifies to finding four different remedial agents in the article. Comments are superfluous.

3. *Ayer's Ague Cure.*—This is said to be a syrupy tincture of cinchona with aromatics. Each bottle holds 6 fl. oz., and each fluid ounce was found to contain 3.2 grs. of amorphous cinchona alkaloids, 3 grs. cinchonine, 0.9 cinchonidine, 0.8 quinine, and 1 gr. of quinidine.

4. *Blair's Rheumatic Pills.*—We do not know the formula.

5. *Ham's Oil of Gladness.*—We have received the following from one of our subscribers:

"Some one inquired in your last December number for the formula of "Ham's Oil of Gladness." Following is an "oil of gladness," but whether it is Ham's, Shem's, or Japheth's, I cannot say:

| | |
|---|---|
| Oil of Cedar, | |
| " Hemlock, | |
| " Sassafras | āā ʒ 2 |
| " Thyme | ʒ 1 |
| Camphor. powd | ℥ 1 |
| Linseed oil | O 2 |

Dissolve the oils and the camphor in a sufficient quantity of alcohol, and add the solution to the linseed-oil. The dose is 8 to 10 drops for a child."

6. A formula for *Printer's Blocking Cement.*—One that furnishes a product ready for use and not requiring heat.

7. A formula for *Emplastrum Diachylon c. G.*, which our correspondent says stands for *Emplastrum Diachylon cum Gummi.* We surmise that this is meant for a spread diachylon plaster with a rubber base.

### Retirement of Dr. Kerner.

Dr. George Kerner, the technical manager of Zimmer's Quinine Works at Frankfurt-on-the-Main, whose portrait will be found on page 141 of our volume for 1884, has retired from business, and his place has been filled by Dr. A. Weller, who has during several years been qualifying himself for the responsible position, under Dr. Kerner's direction. Mr. W. L. Jaeger has been made partner of Mr. G. C. Zimmer. The firm name will continue to be "C. Zimmer, Chemische Fabrik."

**Dr. J. Pereira Reis,** formerly Professor of Pharmacology in the Oporto Medical School, editor of Albano's "Codigo Pharmaceutico Lusitano," and author of numerous works, is dead.—*Illust. Sci. Monthly.*

**Colorless Preparation of Golden Seal.**—J. L. Irwin states experiments to prove that colorless preparations of *Hydrastis Canadensis* cannot contain berberine, and that the value of such preparations must depend mainly upon the hydrastine contained.

To keep postage stamps in the pocket or memorandum book without sticking, a New Orleans post-office clerk advises people to rub the sticky side over the hair two or three times. The oil of the hair coats the mucilage and prevents it from sticking.

**Permanganate of Cocaine is lately announced.**

## SELECTIONS FROM THE HOSPITAL FORMULARY

### OF THE DEPARTMENT OF PUBLIC CHARITIES AND CORRECTION OF THE CITY OF NEW YORK.

(Continued from page 60.)

### VIII. POWDERS.

#### 285. *Calomel et Naphthalinum* (*Bureau O. D. P.*).

| | |
|---|---|
| ℞ Hydrarg. Chloridi Mitis, | |
| Naphthalini Deodorati | ää gr. 30 |

Mix. For external use. (*Dr. S. Alexander.*)

#### 286. *Pulvis Acidi Borici et Iodoformi* (*Bureau O. D. P.*).

| | |
|---|---|
| ℞ Acidi Borici | gr. 180 |
| Acidi Tannici | gr. 10 |
| Iodoformi | gr. 60 |

Mix. To be applied, once a day, to everted and granulated eyelids. (*Dr. W. F. Mittendorf.*)

#### 287. *Pulvis Bismuthi Alkalinus* (*Pulvis "Trousseau," Trousseau's Powder*) (*Bureau O, D. P.*).

| | |
|---|---|
| ℞ Bismuthi Subnitratis, | |
| Sodii Bicarbonatis, | |
| Cretæ Præparatæ | ää gr. 5 |

Mix. One dose.

#### 288. *Pulvis Bismuthi Compositus* (*Bureau O. D. P.*).

| | |
|---|---|
| ℞ Bismuthi Subnitratis, | |
| Sodii Bicarbonatis, | |
| Sacchari pulv., | |
| Acaciæ pulv., | |
| Zingiberis pulv | ää part. æqu. |

Mix.

*Dose:* A tablespoonful, for adults, in dyspepsia. (*Dr. W. E. Wheelock.*)

#### 289. *Pulvis Bismuthi, Cretæ et Opii* (*Bureau O. D. P.*).

| | |
|---|---|
| ℞ Bismuthi Subnitratis, | |
| Cretæ Præcipitatæ | ää gr. 30 |
| Opii pulv | gr. 1 |

Mix. Divide into 10 powders. For children, in diarrhœa. (*Dr. J. Lewis Smith.*)

#### 290. *Pulvis Bismuthi, Cretæ et Zingiberis* (*Bell. Hosp.*).

| | |
|---|---|
| ℞ Bismuthi Subnitratis, | |
| Cretæ Præparatæ | ää gr. 5 |
| Zingiberis pulv | gr. 2 |

Mix. One dose.

#### 291. *Pulvis Bismuthi et Pepsini* (*Bureau O. D. P.*).

| | |
|---|---|
| ℞ Bismuthi Subnitratis, | |
| Pepsini Saccharati | ää gr. 5 |

Mix. One dose, for children.

#### 292. *Pulvis Cerii et Bismuthi Compositus.*

| | |
|---|---|
| ℞ Cerii Oxalatis | gr. 3 |
| Bismuthi Subnitratis, | |
| Sodii Bicarbonatis | ää gr. 5 |
| Codeinæ | gr. ¼ |

Mix. Divide into 12 powders.

#### 293. *Pulvis Iodoformi Compositus* (*Char. Hosp.*).

| | |
|---|---|
| ℞ Iodoformi | part. 1 |
| Zinci Carbonatis | part. 3 |

Mix. To be applied with a blower, or by means of a dusting box, as a dressing in venereal sores, ulcers, etc.

#### 294. *Pulvis Iodoformi et Naphthalini.*

| | |
|---|---|
| ℞ Iodoformi | ʒ 2 |
| Acidi Borici | ℥ 3 |
| Naphthalini | ʒ 5 |
| Olei Bergamii | fl. ʒ 2 |

Triturate the naphthalin with the oil of bergamot, then mix with it the iodoform and boric acid, and triturate until a homogeneous powder is produced.

*Note.*—The two preceding formulæ furnish a *diluted* iodoform powder, which may be used to advantage in most cases, in place of undiluted iodoform. The last-mentioned combination has the additional advantage of having the odor of iodoform completely disguised.

#### 295. *Pulvis Iodoformi et Tannini* (*Pulvis Iodoformi Inodorum*) (*Bureau O. D. P.*).

| | |
|---|---|
| ℞ Iodoformi | gr. 180 |
| Acidi Tannici | gr. 60 |

Mix. To be applied to ear, mornings and evenings, in granulations of external auditory canal. (*Dr. W. F. Mittendorf.*)

#### 296. *Pulvis Morphinæ, Bismuthi et Pepsini* ("*Ward Powder*") (*Bell. Hosp.*).

| | |
|---|---|
| ℞ Pulv. Morphinæ Comp | gr. 30 |
| Bismuthi Subnitratis, | |
| Pepsini | ää ʒ 2 |

Mix. Divide into 12 powders.

#### 297. *Pulvis Naphthalini Aromatisatus.*

| | |
|---|---|
| ℞ Naphthalini | ℥ 4 |
| Olei Bergamii | fl. ʒ 1 |

Mix by trituration. For external use.

#### 298. *Pulvis Quininæ Compositus* (*Clark's Powder*).

| | |
|---|---|
| ℞ Quininæ Sulphatis | gr. 10 |
| Capsici Pulv | gr. 3 |
| Opii Pulv | gr. 1 |

Mix. One dose. (*Dr. Alonzo Clark.*)

#### 299. *Pulvis Tannini Compositus* (*Conway's Special*) (*Bell. Hosp.*).

| | |
|---|---|
| ℞ Lycopodii, | |
| Zinci Oxidi | ää part. 1 |
| Acidi Tannici | part. 3 |

Mix.

#### 300. *Pulvis Zinci et Amyli* ("*Dusting Powder*").

| | |
|---|---|
| ℞ Zinci Oxidi | part. 1 |
| Amyli | part. 3 |

Mix.

*Note.*—The two preceding preparations are used as dusting powders, in bed-sores, prickly heat, etc.

#### 301. *Trituratio Elaterini* (*Trituration of Elaterin*).

| | |
|---|---|
| ℞ Elaterini crystallisati | gr. 1 |
| Sacchari Lactis | gr. 9 |

Mix thoroughly by trituration.

*Dose:* ⅛ to 1 grain.

*Note.*—This preparation is officinal in the U. S. Ph. It is quoted here for the purpose of cautioning the physicians of the Department not to trust to the commercial Elaterium, which has become very unreliable. "Clutterbuck's Elaterium" is still quoted in price-lists, but Dr. Clutterbuck died in 1856, and what is now sold under that name is very variable in strength. The above trituration furnishes a standard substitute for elaterium, of about the same dose as the latter. Care should be taken not to confound the terms *elaterium* (the crude commercial substance deposited by standing from the juice of the squirting cucumber) and *elaterin*, the name of the active principle contained therein.

### XI. MISCELLANEOUS FORMULÆ AND SUPPLEMENT.

#### 302. *A-C-E Mixture.*

| | |
|---|---|
| ℞ Alcohol | fl. ℥ 1 |
| Chloroformi Purificati | fl. ℥ 2 |
| Ætheris Fortioris | fl. ℥ 3 |

Mix. For Anæsthesia.

#### 303. *Antiseptic Catgut.*

1. Place raw catgut into oil of juniper for twenty-four hours; then remove it, rinse it with alcohol, and keep it in alcohol until it is wanted for use.

*Note.*—The oil of juniper ought to be that distilled from the berries and not that obtained from the wood; macerating the catgut in the oil removes the fatty matter of the gut.

The sizes of catgut used in surgery are usually designated by numbers, which are, however, not uniform. The finer or thinner sizes are those known in trade as first and second banjo strings; the next as E violin, and the coarser kinds as A and D violin string.

#### 304. *Antiseptic Gauzes.*

a. *Bichloride Gauze.*

Place absorbent or hospital gauze into a solution of bichloride of mercury of the strength of 1 in 1,000 for several hours. Wring it dry, roll it up, and put it away for use, wrapped in paraffin paper.

It may be rendered less irritating by using a solution of bichloride containing 10 per cent of glycerin.

*Note.*—All solutions of bichloride used for antiseptic purposes ought to be faintly tinted with fuchsin, so as to permit the solution, as well as the fabrics impregnated with it, to be distinguished, by their pinkish tint, from others.

Absorbent or hospital gauze is any kind of loosely woven muslin, completely deprived of fatty matter by repeated treatment with caustic alkalies, and subsequent washing. It is also usually bleached with chloride of lime, but must retain no traces of these substances. The commercial brands known as "Stillwater" or "Lehigh E." are the most suitable for this purpose.

b. *Boric Acid Gauze—Borated Gauze.*

Make a solution of 1 part of boric acid in 10 parts of boiling water. Saturate absorbent gauze with the solution, withdraw it, wring it out gently, only enough to keep the liquid dripping from it, and dry it. If no artificial drying appliance is available, such as heated rollers, the fabric should be hung up in a horizontal position, to prevent the solution from draining more to one side than the other.

*Note.*—The boric acid, which crystallizes on cooling, is apt to fall off the fabric when dry. This may be somewhat prevented by adding to the solution a little tincture of benzoin or a small quantity of a solution of shellac in borax, or a little glycerin.

c. *Carbolized Gauze* (after Lister).

Melt together 5 parts of resin, 7 parts of paraffin, and then add 1 part of carbolic acid. Impregnate loosely woven muslin with the mixture, in a properly arranged steam chamber, where the escape of carbolic acid vapors can be prevented. Remove the impregnated gauze after a few hours, wrap it in paraffin paper, and keep it in air-tight tin boxes.

d. *Carbolized Gauze* (after Bruns).

Dissolve 25 lbs. of resin in 13 gallons of alcohol; then add 5 lbs. of castor oil, 7 lbs. of carbolic acid, and 1 lb. of tincture of benzoin. Soak in this solution folded pieces of gauze muslin of suitable size (about 7 to 12 yards in length), and after they have been thoroughly saturated, pass them through a clothes-wringer to press out the excess of liquid. Let the pieces be spread out and stretched by two persons holding the ends, and let them be swung about for a few minutes, until the remaining alcohol has nearly evaporated, and the fabric feels only slightly damp. Then roll or fold them tightly, wrap them in paraffin paper, and keep them in air-tight boxes.

*Note.*—The alcohol may be replaced by wood-spirit, benzin, or other volatile solvents, but care must be taken to dissipate all traces of these solvents, so far as they are odorous. It is usually necessary to restore some of the carbolic acid, if any notable quantity has escaped, by exposing the fabric to the vapor of the acid before it is wrapped and put away.

e. *Iodoform Gauze.*

1. Dissolve 4 parts of iodoform in 16 parts (by weight) of ether. Then add 16 parts of alcohol, 2 parts of tincture of benzoin, and 2 parts of glycerin.

When preparing iodoform gauze at the bedside, pour such an amount of the above solution (which is *inflammable*) as will contain the amount of iodoform to be incorporated with the gauze, into a wide beaker or other suitable vessel, and immerse the requisite quantity of absorbent gauze in it, so that it may completely soak up the liquid and will be uniformly impregnated with it. Then remove it, dry it as far as necessary by opening it out and swinging it about, and then apply it, or wrap it in paraffin paper and keep it in air-tight boxes. The gauze should not be exposed to sunlight.

*Note.*—Supposing a 10 per cent iodoform gauze is to be prepared. As the above solution contains 10 per cent of iodoform, weigh out 100 parts of it; also weigh out 88 parts of absorbent gauze, and make the latter take up the whole of the former. On drying, the gauze will retain the 10 parts of iodoform and the 2 parts of glycerin, and it will, therefore, be a 10 per cent iodoform gauze.

2. In some institutions, iodoform gauze is prepared by placing bichloride gauze into a mixture of equal volumes of alcohol and glycerin, wringing it out dry, and then rubbing any desired quantity of iodoform into it.

*Note.*—The odor of iodoform adhering to the hands after handling it, may be most readily removed by washing the hands in an aqueous solution of tannic acid.

### f. *Naphthalin Gauze.*

Place bichloride gauze into a saturated solution of naphthalin in alcohol. Wring it out, dry it, and put it away in tightly-closed boxes.

### 305. *Antiseptic Silk.*

Boil the silk for twenty minutes in water. Then remove it, wring it out or press it, and place it into a solution of bichloride of mercury of the strength of 1 in 500.

### 306. *Antiseptic Solutions.*

PRELIMINARY NOTICE.—It is often required to prepare for immediate use a solution of a certain strength, designated either by percentage or by such terms as: "1 in 1,000," "1 in 1,500," etc. When great accuracy is required, or when the solvent is one which is much lighter or heavier than water, such solutions must be made by *weight*. When the solution is aqueous, however, and a fair approximation to the exact strength designated is sufficient for all practical purposes, the solution may be made in a more expeditious manner, by making it up to a definite *measure*.

The following table will give, at a glance, the quantities of any *solid* in *grains*, or of any *liquid* in *minims*, required to prepare a pint of a solution approximately of the desired strength:

TO MAKE 1 PINT OF A SOLUTION,

| Required to contain of a certain drug | | | | take of the drug | | |
|---|---|---|---|---|---|---|
| 1 in 10000 | | | | 0.7 | (1) | GRAINS OR MIN |
| 1 " 5000 | | | | 1.4 | (1½) | " " |
| 1 " 4000 | | | | 1.8 | (2) | " " |
| 1 " 3000 | | | | 2.4 | (2½) | " " |
| 1 " 2500 | | | | 2.9 | (3) | " " |
| 1 " 2000 | | | | 3.6 | (3½) | " " |
| 1 " 1500 | | | | 4.8 | (5) | " " |
| 1 " 1000, | or | 1/10 | PER CT. | 7.2 | (7) | " " |
| 1 " 500 | " | 1/5 | " | 14.5 | (14½) | " " |
| 1 " 400 | " | ¼ | " | 18 | | " " |
| 1 " 300 | " | 1/3 | " | 24 | | " " |
| 1 " 200 | " | ½ | " | 36 | | " " |
| 1 " 100 | " | 1 | " | 72 | | " " |
| 1 " 50 | " | 2 | " | 144 | | " " |
| 1 " 40 | " | 2½ | " | 180 | | " " |
| 1 " 33 | " | 3 | " | 220 | | " " |
| 1 " 30 | " | 3 1/3 | " | 240 | | " " |
| 1 " 25 | " | 4 | " | 288 | | " " |
| 1 " 20 | " | 5 | " | 365 | | " " |
| 1 " 10 | " | 10 | " | 720 | | " " |
| 1 " 5 | " | 20 | " | 1440 | | " " |
| 1 " 2 | " | 40 | " | 3600 | | " " |

Supposing a 1-per-cent solution of carbolic acid is to be made, then take 72 minims of crystallized carbolic acid, just sufficiently heated to render it liquid (using a minim graduate which had previously been warmed), and dissolve it in enough water to make 1 pint.

If a 1 in 1,000 solution of bichloride of mercury is to be made, dissolve 7.2 grains of the salt in enough water to make 1 pint.

Under ordinary circumstances, it is not necessary to use the small fractions, but the quantities may be rounded off, as shown by the figures in parentheses.

*Note.*—1 pint of water measures 7,680 minims, but weighs only 7,291 grains. It is upon the *weight* of 1 pint of water that the above given proportions are based.

### a. *Solution of Carbolic acid.*

A saturated solution of pure, crystallized carbolic acid in water, at the ordinary temperature, contains about 5 per cent of the acid, or 1 part in 20 parts.

### b. *Solution of Boric Acid.*

1 part of boric or boracic acid is soluble in 25 parts of water at 59° F., and in 3 parts of boiling water.

A cold saturated aqueous solution, therefore, contains 4 per cent of the acid.

### c. *Solution of Bichloride of Mercury.*

1 part of bichloride of mercury is soluble in 16 parts of water at 59° F., and in 2 parts of boiling water. It is also soluble in 3 parts of cold, and 1.2 parts of boiling alcohol.

A cold, saturated aqueous solution, therefore, contains 6¼ per cent of the salt.

*Note.*—All solutions containing bichloride of mercury, even those used for preparing bichloride gauze, ought to be distinguished by being faintly tinted with fuchsin, to prevent mistakes at the bedside. (See No. 304, a, note; and below, *Glyceritum Hydrargyri Bichloridi.*)

### d. *Solution of Naphthol.*

1 part of Beta-naphthol is soluble in about 1,000 parts of cold water.

### e. *Solution of Salicylic Acid.*

1 part of salicylic acid is soluble in 450 parts of water at 59° F., and in 14 parts of boiling water. Also in 2½ parts of cold and in less than 1 part of boiling alcohol.

### 307. *Antiseptic and Bleached Sponges.*

Deprive the sponges of sand and dirt by beating and picking, and then wash them thoroughly in water. Wring them out and transfer them to a 1 per cent aqueous solution of permanganate of potassium, in which they should be well worked about. Remove them after about one hour, wash them thoroughly with water, and squeeze out the latter as much as possible. Then put them into a solution of hyposulphite of sodium, containing ½ pound in 1 gallon, to which some hydrochloric acid (1 fl. oz. for every gallon of the solution) had been added just previous to the immersion of the sponges. Leave them in this liquid for 15 minutes, occasionally squeezing them and working them about. Finally, take them out, wash them thoroughly, and having wrung them out, keep them in a 1 in 40 solution of carbolic acid.

*Note.*—Some sponges contain a large reddish core, which is not always bleached by one treatment, By repeating the operation the desired result is usually accomplished. (See NEW REMEDIES, 1883. 214.)

### 308. *Aqua Sedativa.* (*Eau Sedative Raspail.*)

℞ Sodii Chloridi............gr. 440
Aquæ Ammoniæ.........♏ 360
Spir Camphoræ ..........♏ 90
Aquæ destillatæ...q.s. ad fl. ℥ 16

Dissolve and mix.

### 309. *Aqueous Solutions for Convenience in Dispensing.*

*Note.*—These solutions should not be kept ready-made unless there is a constant demand for them, so that they will have to be frequently renewed. Some of them are saturated or nearly so; the others are of a strength established by long custom. Experience has shown that it is not superfluous to point out that the proportions refer to troy weight and apothecaries' measure. One pint of a solution of iodide of potassium of the strength of 1 grain in 1 minim, therefore, requires 16 *troy ounces* of the salt to be dissolved in enough water to make 16 *fluidounces*. That is, it requires 17 avoirdupois ounces and 242 grains of the salt to make 1 pint of the solution. The "pound to pint" system is, therefore incorrect, and will not be tolerated in this Department.

| | | | | |
|---|---|---|---|---|
| Acidum Boricum, . | tr. oz. | 1 in | 30 | fl. oz. |
| " Carbolicum,[1] | " | 1 " | 20 | " |
| " " crudum,[2] | " | 1 " | 200 | " |
| Alumen, . . . | " | 1 " | 12 | " |
| Ammonii Bromidum, | " | 1 " | 2 | " |
| " Carbonas, . | " | 1 " | 4 | " |
| " Chloridum, | " | 1 " | 4 | " |
| Chloral, . . . . | " | 1 " | 2 | " |
| Cinchoninæ Sulphas,[3] | " | 1 " | 2 | " |
| Magnesii Sulphas, . | " | 1 " | 2 | " |
| Plumbi Acetas, . . | " | 1 " | 2 | " |
| Potassii Acetas,[4] . | " | 1 " | 1 | " |
| " Bicarbonas, . | " | 1 " | 4 | " |
| " Bromidum, . | " | 1 " | 4 | " |
| " Chloras, . | " | 1 " | 16 | " |
| " Iodidum, . | " | 1 " | 1 | " |
| Quininæ Sulphas,[3] . | " | 1 " | 2 | " |
| Sodii Bicarbonas, . | " | 1 " | 12 | " |
| " Boras, . . | " | 1 " | 16 | " |
| " Bromidum, . | " | 1 " | 2 | " |
| " Chloras.[6] . . | " | 1 " | 2 | " |
| " Salicylas,[5] . . | " | 1 " | 2 | " |
| Zinci Acetas, . . | " | 1 " | 4 | " |
| " Sulphas, . . | " | 1 " | 4 | " |

1. This is the usual strength kept in stock. It should be carefully labelled.

2. For disinfection. But it should be stated that this solution is too weak to destroy all forms of micro-organisms.

3. Both of these solutions are to be prepared with the aid of diluted sulphuric acid.

4. A saturated solution of this salt in water is not quite of the strength of 1 grain in 1 minim, but approximately so.

5. This should be tested for its reaction, If it is found alkaline it should be slightly acidulated with acetic acid. Even a neutral solution had better be thus acidulated, to prevent it from darkening. No iron utensils or filtering paper containing iron (such as the common gray filters) should be brought into contact with salicylic acid or saylicylates, as they would become reddened by the iron.

6. It should be remembered that chlorate of *sodium* is *very* soluble in water, 1 in about 1.1 part, while chlorate of *potassium* is much less soluble, about 1 in 16 parts. The former salt is in many cases preferable to the latter.

### 310. *Explosive Mixtures.*

From the large number of substances or combinations of substances which are liable to ignite or explode under the influence of various causes, the following deserve mention here, as they are of more frequent occurrence in prescriptions than others.

*Note.*—A more complete list of them will be found in NEW REMEDIES for 1878, p. 165.

1. *Chlorate of Potassium.*

If this is triturated with readily oxidizable or combustible substances, such as sugar, tannic or gallic acids, dry vegetable powders, hypophosphites, sulphur, ferrocyanide of potassium, etc., etc., an explosion will result. The same will happen if sulphuric acid be dropped on a mixture of these substances with the salt.

In this Department, chlorate of potassium should *never* be prescribed in form of *powder*, in combination with any other substance.

A mixture of chlorate of potassium, tincture of chloride of iron, and glycerin, has been known repeatedly to explode, if the quantity of chlorate was large.

2. *Chorate of Sodium*

Requires the same precautions as the preceding.

3. *Permanganate of Potassium*

Should never be mixed, either dry or in solution, with readily oxidizable or combustible substances, such as glycerin, alcohol, reduced iron, etc., etc.

4. *Chromic Acid*

Behaves like the preceding in its tendency to part with its oxygen. The battery liquid prepared from bichromate of potassium and sulphuric acid has several times caused an explosion of a battery, probably through the accidental introduction of some readily oxidizable matter.

5. *Oil of Turpentine and other Volatile Hydrocarbons*

Are liable to explode or ignite when brought in contact with strong nitric or sulphuric acid, iodine, bromine, etc,

6. *Iodine,*

When brought in contact with strong water of ammonia, may produce the explosive iodide of nitrogen. In combination with ammoniated mercury it will, under certain conditions, produce an explosion. (See NEW REMEDIES, 1876, 40.)

7. *Nitrate of Silver*

Should never be combined with organic substances, or with easily reducible inorganic substances. If the reduction takes place rapidly, an explosion may result.

8. *Nitric and Nitrohydrochloric (Nitromuriatic) Acids*

Are apt to cause a violent reaction, and in a closed bottle, an explosion, when combined with oxidizable substances.

9. *Borax, Bicarbonate of Sodium, Glycerin, and Water.*

When these are mixed, one-half of the carbonic acid of the bicarbonate will be set free. This reaction must be allowed to terminate before the bottle containing the mixture is stoppered.

10. *Chloride of Lime,*

When combined with glycerin, or sulphate of ammonium, or honey, evolves a gas which, if confined, will fracture the bottle.

11. *Spirit of Nitrous Ether*

Will react (produce effervescence, etc.) with certain substances or preparations, for instance Fluid Extract of Uva Ursi.

311. *Fehling's Solution. (Reagent for Glucose.)*

Fehling's Solution, completely mixed and ready for use, cannot be kept long without change. For this reason it is supplied by the General Drug Department in two separate portions or solutions, of which equal measures are to mixed when the reagent is to be used.

1. *The Copper Solution.*

Dissolve 34.64 grammes (or 534.5 grains) of pure crystallized sulphate of copper in enough distilled water to make 500 cubic centimeters (or 16.9 fluidounces).

2. *The Rochelle Salt Solution.*

Dissolve 173 grammes (or 2,670 grains) of pure, recrystallized Rochelle salt in enough solution of soda (spec. grav. 1.140) to make 500 cubic centimeters (or 16.9 fluidounces).

For use, measure equal volumes of each solution, and mix them by pouring the copper solution into the Rochelle salt solution—*not* vice versa.

10 cub. cent. of the mixture correspond to 0.05 Gm. of glucose.

220 minims of the mixture correspond to 1 grain of glucose.

*Note.*—2 molecules of glucose ($2\ C_6H_{12}O_6 = 360$) reduce 10 molecules of cupric oxide $10\ CuO = 794$).
1 molecule of lactose ($C_{12}H_{22}O_{11} = 342$) reduce 7 molecules of cupric oxide ($7\ CuO = 555.8$).

(To be continued.)

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**Application for Painful Teeth.**—A contributor to the *Union Médicale* gives the following formula:

| | |
|---|---|
| Dry Alcoholic Extract of Opium. | 1 part. |
| Camphor | 1 " |
| Balsam of Peru | 1 " |
| Mastic | 2 parts. |
| Chloroform | 20 " |

A pellet of cotton soaked in the solution is to be introduced into the cavity.

**Diuretic Wine, Trousseau.**—"Vin Diuretique, Hôtel Dieu," as devised by Trousseau, is prepared as follows:

| | |
|---|---|
| Digitalis | 5 parts. |
| Squill | 7½ " |
| Juniper | 75 " |
| Acetate Potassium. | 50 " |
| Alcohol, 90% | 100 " |
| White Wine | 900 " |

Break up the digitalis, squill, and juniper berries, and macerate for a fortnight in the wine and alcohol, frequently stirring. Press, strain, add the acetate, and filter.

### Prince Albert Cachou.

| | |
|---|---|
| Mace | 420 grains. |
| Cardamom | 80 " |
| Cloves | 40 " |
| Vanilla | 120 " |
| Orris Root | 160 " |
| Musk | 5 " |
| Liquorice Root | 540 " |
| Oil Peppermint | 30 drops. |
| " Lemon | 20 " |
| " Neroli | 10 " |
| " Cinnamon | 10 " |
| Mucilage | q. s. |

Mix the first-named ingredients, in powder, with the essential oils; then form a mass with mucilage, and divide it into pills of one grain each, which are afterwards silvered.—After *Pharm. Zeit.*

### New Recipes for Perfumes.

E. SOXHLET, of Vienna, furnishes the following new recipes:

1. *Eau de Cologne.*

| | |
|---|---|
| Oil Neroli | 5 parts. |
| " Bergamot | 45 " |
| " Lemon | 20 " |
| " Lavender | 1 part. |
| " Rosemary | 1 " |
| Aseptic Acid | 1 " |
| Benzoin | ½ " |
| Deodorized Alcohol | 1,250 parts. |

Digest 14 days, then filter.

[NOTE.—Aseptic acid is probably identical with the orthophenolsulphonic acid, known in commerce as aseptol or sozolic acid, and obtainable in solution containing 33⅓%.]

2. *Court Bouquet.*

| | |
|---|---|
| Oil Bergamot | 10 parts |
| " Neroli | 1½ " |
| Orris Root | 30 " |
| Storax, liquid | ½ part |
| Musk | ⅛ " |
| Deodorized Alcohol | 150 parts |

Digest 14 days, then filter.

3. *Ess-Bouquet.* (Said to be the best formula so far devised, and very similar to that of Baley & Co., of London.)

| | |
|---|---|
| Extract of Jasmine | 50 parts. |
| " " Reseda | 50 " |
| " " Violets | 50 " |
| Orris Root | 30 " |
| Storax, liquid | ¼ part. |
| Ambergris | ½ " |
| Oil Curaçao | 5 parts. |

Digest 14 days, and filter.

4. *Heliotrope Extract.*

| | |
|---|---|
| Vanilla | 1 Gm. |
| Oil Neroli | 1 drop. |
| Oil Bitter Almonds | 2 drops. |
| Musk | 0.1 Gm. |
| Benzoin | 3 " |
| Deodorized Alcohol | 100 " |

Digest 8 days, and filter.—*Neueste Erfind. und Erfahr.*

**Corn Plaster.**—

| | |
|---|---|
| Adhesive Plaster | 100 parts |
| Subacetate of Copper | 8 " |
| Carbolic Acid | 8 " |

M.

**Chartreuse.**—A recent formula published by the *Zeitsch. f. Spir. und Pressh. Industrie* and the *Zeitschr. d. Oest. Apoth. Ver.* is as follows (reduced to U. S. weights and measures):

| | |
|---|---|
| Angelica seed | 4 oz. |
| Angelica root | 1 " |
| Arnica flowers | ½ " |
| Coriander | 8 " |
| Hyssop | 4 " |
| Melissa | 16 " |
| Absinth | 4 " |
| Cardamom | ¼ " |
| Cinnamon, Ceylon | ¼ " |
| Mace | ⅛ " |
| Cloves | ¼ " |
| Alcohol 95% | 39 quarts. |
| Water | 22 " |

Digest the whole during 24 hours, then distil off the liquid and mix with a syrup prepared by heat from 50 lbs. of sugar. When cold, add 2 quarts of finest cognac, ½ oz. of solution of citric acid, and enough water to make 110 quarts. Color it golden-yellow with tincture of saffron. By age the product improves.

A good moth powder is made of ground hops, one drachm; Scotch snuff, two ounces; camphor gum, one ounce; black pepper, one ounce; cedar sawdust, four ounces; mix thoroughly and strew among the furs and woollens to be protected.

**Compound Solution of Chloroform.**—B. L. Maltbie reviews the history of chlorodyne, giving a few of the formulas which are presumed to resemble the original one, and includes one devised by himself, as follows:

| | |
|---|---|
| Hydrochlorate of morphine. | 16 grains |
| Alcohol | 12 fl. drs. |
| Tinct. Cannabis Indica | 4 " |
| Oil Peppermint | 6 minims |
| Tinct. Capsicum | 15 " |
| Chloroform | 4 fl. drs. |
| Dilute Hydrocyanic Acid | 1 fl. dr. |
| Glycerin, sufficient to make | 4 fl. oz. |

Dissolve the morphine in the alcohol and add the other ingredients in the order given.—*West. Drugg.*

**Cement for Glass and Porcelain.**—

| | |
|---|---|
| Isinglass | 30 parts |
| Water | 30 " |
| Glacial Acetic Acid | 60 " |
| Mastic | 3 " |

Mix.

**Furniture Polish.**—A correspondent informs us that the following is easily prepared and works well:

| | |
|---|---|
| Alcohol | 4 ounces |
| Turpentine | 2 " |
| Damar Varnish | 1 ounce |
| Raw Linseed Oil | 8 ounces |
| Acetic Acid | 1 ounce |

Mix.

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## BIBLIOGRAPHY.

VICK'S ILLUSTRATED MONTHLY MAGAZINE AND FLORAL GUIDE, published by JAMES VICK, the seedsman of Rochester, N. Y., has reached its tenth year of existence, and continues to be a handsome and interesting periodical.

DRUGS AND MEDICINES OF NORTH AMERICA, by J. U. and C. G. LLOYD. Cincinnati: Dec., 1886. Vol. II., No. 3.

THIS fasciculus (pp. 67 to 98) relates to *Lobelia inflata* and *L. syphilitica.*

THE CALENDAR OF THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN. 1887, pp. 521, 8vo, 1s.

THIS volume contains the text of laws relating to pharmacy; the incorporation of the society, its regulations, membership, accounts of the Benevolent Fund, etc.

THE Matthews Catalogue and Price-List for 1887 contains a number of novelties in addition to descriptions of well-known forms of apparatus.

# American Druggist

Vol. XVI. No. 5. NEW YORK, MAY, 1887. Whole No. 155.

[Original Communication.]

## PRACTICAL TEST FOR THE IDENTIFICATION OF POTASSIUM.

BY C. W. TEETER, PH.C.

With the "flame test," when but a small percentage of potassium exists in presence of an excess of other materials, as for instance arsenic or ammonium compounds, much hesitancy may be experienced in deciding its presence or absence. Through an effort to approach more absolute certainty regarding its identification the following test has been improvised: In a suitable dish heat the substance, or residue obtained by evaporation and supposed to contain potassium, and carefully add sulphuric acid until no further effervescence is caused, continuing the heat until sulphuric acid fumes begin to rise, then remove. Now add freshly prepared milk of lime magma until the mixture remains alkaline. Filter, adding sufficient water through the filter to exhaust all soluble salts and render the filtrate slightly acid with hydrochloric acid; then add solution of baric chloride until no more precipitate forms, and evaporate to dryness. Extract the residue with a small portion of 75% alcohol (alcohol 3 vols., water 1 vol.) and filter into a test tube. To this add double its quantity of alcoholic solution of nitrophenic acid (1 part to 50) when, if potassium be present, yellow prismatic needles of potassium nitrophenate will soon appear. With careful manipulation, avoiding excess of both solvent and reagent, eight milligrammes of potassic sulphate yield an abundant crop of crystals easily recognized with certainty, not requiring the use of a lens.

[Original Communication.]

## A COMMON AND DANGEROUS ADMIXTURE OF CONIUM FRUIT WITH ITALIAN ANISE.

BY C. L. LOCHMAN.

About eight years ago, I attempted to raise anise plants (*Pimpinella Anisum*, L.), and planted Italian anise fruit, but to my surprise got only a crop of *Conium maculatum*. Since that time I repeated the experiment a number of times, and in every instance more conium germinated than anise. Last spring I determined to test the matter more fully, and procured Italian seed from wholesale dealers in New York, in order to get them as fresh as possible, and six specimens from local druggists. These seeds were in store from 2 to 4 years. I laid out patches of ground about 18 inches (0.45 M.) square, in each of which I scattered about 1½ drachms (6 Gm.) of seed, and while only isolated plants of anise appeared, I counted in each patch from 15 to 30 thrifty conium plants. Some of these bore fruit the same year, and the others are still in a healthy condition. At the same time I planted the so-called German anise, but no conium germinated, and I concluded it to be free from the latter.

The books speak of accidental admixture of conium fruit with anise, but I am not aware that the real source of conium is suspected. Conium is a biennial plant, but there are aberrations from the usual law as is the case with hyoscyamus, and some plants produce a crop of fruit the first year, and are consequently harvested with the annual anise. As the conium possesses much greater vitality than the anise, the contamination may reach an alarming extent if the planters are indifferent in regard to the purity of the seed. From experiments in planting Italian anise, and also in examining it under a lens, I judge the proportion of conium fruit is from 2 to 5 per cent, if not more. I do not believe there is a single lot of Italian anise in the market that is not contaminated with conium fruit. Any one can satisfy himself of the presence of conium by triturating the suspected anise in a mortar with a solution of potassa, which will develop a disagreeable, mouse-like odor, or by planting the fruit and observing their growth. The base leaves of conium are tri-pinnate, while the radical leaves of anise are roundish-cordate, lobed and crenate, but the stem leaves are also pinnate. The distinguishing marks of anise and conium are given in the U. S. Pharmacopœia and the dispensatories, but their characteristics are not as readily recognized as might be inferred from the printed description. There is also a marked difference in the appearance of Italian and the commercially known German anise. The former is considerably larger, proportionably longer, and lighter in color. The German anise resembles conium more closely than the Italian, though it seems to be free from the admixture of conium as far as my observation goes.

Bethlehem, Pa., April 14th, 1887.

*Note by Ed. Am. Drugg.*—Mr. Lochman has forwarded to us, by mail, samples of conium plants grown from seed mixed with Italian anise, and fruiting the first season.

## AN IMPROVED FILTERING FUNNEL.

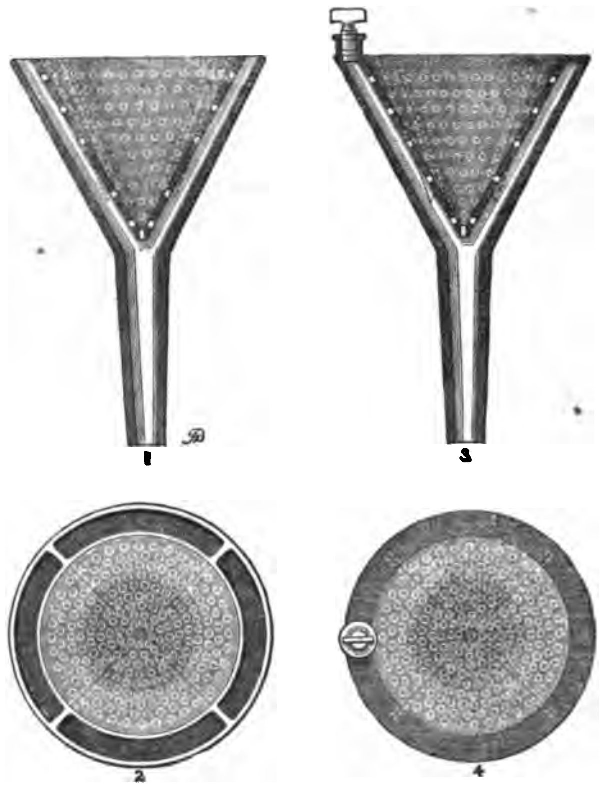
An improved funnel for rapid filtration has recently been patented in England (Pat. No. 8,375) by Wallace Christopher Nickels.

Filtration with ordinary smooth-side funnels is usually quite slow and tedious. To hasten the operation, various devices have been used, such as a glass-rod placed into the funnel, or funnels with indented or ribbed sides. Yet when a vacuum pump is to be employed in connection with a funnel, such contrivances are usually inadmissible, as the paper is required to lie closely to the surface of the funnel.

The new funnel here presented appears to offer decided advantages, provided it can be furnished of different sizes and at a reasonable price.

Figs. 1 and 2 represent a double funnel, the inner one being perforated all over, and attached to the outer one by suitable ridges or projections.

The filter paper is placed in the inner funnel in the usual manner, and the operation commenced, but instead of the filtrate only running from the bottom of the funnel, it immediately flows through the various holes, and thence down the sides, and away. Should the paper and contents be difficult to wash, the funnel spout must be connected with a piece of india-rubber tube and a clamp thereon. When the mother liquor has filtered away, the clamp may be shut, and the wash liquor run into the space *between the two* funnels, it will at once flow through the paper and contents into the inner funnel. The clamp is now opened and the liquor run off, thus fulfilling exactly the function of a *washing filter press*. Indeed, the perforated inner funnel corresponds precisely to the perforated sheet so well known as being one of the chief advantages of the "Dehne Filter Press."



Nickels' improved filter.

Figs. 3 and 4 represent the same funnel, but with the space between the two cones *closed* at the top, provided, however, with a cock for washing or the admission of air. This funnel is for use in connection with a vacuum pump. *The whole surface of the paper* is exposed to the vacuum, but with this pattern it is not desirable to carry the perforations of the inner funnel right to the top as shown in the engraving; half-way up will be found sufficient.

Filtering operations and subsequent washing, which with an ordinary funnel have taken ten hours, have been finished with these funnels in forty minutes.

Less washing liquid, by far, is required; an important consideration in the case of volatile liquids, such as ether, benzol, etc.

The matter upon the inside of the paper will also dry much more quickly, a current of air constantly passing between the two funnels, and lastly, the funnel may be used in a vessel into which it fits tightly, the displaced air finding vent between the two funnels.

Mr. B. Nickels, F.C.S., of 104 Leadenhall street, London, is ready to give further information regarding these funnels.

## Detection of Certain Medicinal Chemicals in the Urine.

The critical review of urinary tests by Dr. F. Penzoldt,* of which we have given abstracts in our preceding numbers, is followed in the original pamphlet by a short chapter on the best methods of recognizing in the urine the presence of certain medicinal chemicals, of which the rate of absorption and elimination are likely to offer useful data to the physician, and the search for which is often intrusted to the hands of a pharmaceutical friend or acquaintance.

In the words of the author: "It is frequently of the utmost importance, for the critical judgment of a certain case, to know whether the patient has actually taken a certain remedy or not. For instance, it is often desirable to convince one's self, in case of syphilis, whether iodide of potassium has been taken, or in a case of rheumatism, whether salicylic acid has been used. A few of them are so characteristic in their reactions that they may *serve as detectives whether* a certain drug has been taken or not according to instructions. It is only necessary to add a sufficient quantity of them, in therapeutically ineffective doses, to the real remedy, for instance, *salicylic acid*, or better, *sodium salicylate*, in doses of 8 to 16 grains, may be added to remedies which are themselves difficult to detect; or *iodide of potassium* (about ⅛ grain). If these are detected in the urine, the prescribed remedy may be assumed to have been taken.

### 1. *Iodide of Potassium.*

Mix the urine with a few drops of crude *fuming* nitric acid and some chloroform (about one-fourth the volume of the urine); then shake. The chloroform, after settling, will be found to have a reddish-violet tint.

This test is certain, very sharp, and easy of execution.

### 2. *Bromide of Potassium.*

Add to the urine fresh chlorine water, and chloroform or bisulphide of carbon, and shake. If bromine was present, the chloroform will have a yellow color.

This test is certain, but much less sharp than that for iodide. Bromine is recognizable only when present in considerable quantity. The chlorine water must be fresh; hence the test is not very suitable in practice. [The fresh chlorine water may be replaced by a little chlorate of potassium treated with just enough hydrochloric acid to decompose the chlorate completely, and then diluting with a little water.—Ed. Am. Dr.]

### 3. *Salicylic Acid.*

On adding ferric chloride to the urine, the latter will assume a bluish-violet color. If a very small quantity of salicylic acid is present, it is best to take a larger portion of the urine, previously acidulated with sulphuric acid, to shake it with an equal volume of ether, and to apply the reaction to the ethereal solution [or to the residue left after its evaporation.—Ed. Am. Dr.].

Though a similar reaction with ferric chloride is furnished by several bodies belonging to the aromatic series, the bluish-violet color is usually found in the urine only after salicylic acid has been taken.

The test is very sharp and easy of execution, particularly when ether has been used for extracting the acid.

### 4. *Antipyrin.*

After antipyrin has been taken, the urine acquires a yellowish-red to blood-red color. It is very easy to confound this with urine actually containing blood, since the latter shares with antipyrin-urine the property of being dichroic (red by transparent, and greenish by reflected light).

After addition of a few drops of dilute solution of ferric chloride, the color of the urine, which is reddish-yellow in thin layers, is converted into a handsome dark-red. In the case of a urine rich in phosphates, the resulting precipitate (of ferric phosphate) somewhat masks the color, which can only be well distinguished at the moment when the drops of ferric chloride solution fall into the liquid.

This test is uncertain, on account of the number of different substances capable of producing similar reactions. To distinguish it from the reaction for acetic ether, the liquid may be heated, when the red color will remain if it was due to antipyrin, while it will disappear if it was caused by acetic ether.

### 5. *Thalline.*

After the administration of thalline, the urine has usually a greenish-yellow to greenish-black color.

On adding ferric chloride to thalline-urine, the latter acquires a fine red color. On shaking the urine with ether, the latter dissolves out a substance which assumes an intense *green* color with ferric chloride (Jaksch). The same reaction occurs if chloroform be used instead of ether for shaking (Penzoldt).

Of course, a simple addition of ferric chloride is insufficient as a test. To distinguish the reaction from that with other substances, the agitation with ether or chloroform, and addition of *one* drop of ferric chloride so as to produce a *green* color is highly to be recommended. If too much ferric chloride is added, a red color is sometimes produced. If much thalline is present, the ether assumes a handsome rose-red color immediately after shaking. In presence of small quantities, however, the green color produced by ferric chloride in the ether solution does not make its appearance.

### 6. *Naphthalin.*

After doses of 30 grains or more per day, the urine acquires a dark-brownish tint, sometimes soon afterwards, at other times after long standing.

Pour a little urine into a test-tube, pour it out again so that only a few drops remain adhering to the glass, then add about 1 C.c. of concentrated sulphuric acid. The urine floating on the surface of the acid will show a handsome dark-green color, particularly at the place of contact of the two liquids. On shaking, the color is also communicated to the acid, but does not persist long (Penzoldt).

Since the green color produced by sulphuric acid has not been met with either in normal or in pathological urine, except it contained naphthalin, it probably is characteristic of this substance alone. It is probably due to the presence of naphthachinon.

The test is very sharp, and very easy of execution; but it requires the use of *highly* concentrated sulphuric acid, which is a necessary condition for success.

### 7. *Tannin.*

After the use of tannic acid, the urine will assume a grayish-green or blackish color, or deposit such colored precipitates on the addition of ferric chloride.

### 8. *Chrysophanic Acid* (from Rhubarb or Senna).

On adding solution of potassa to urine voided after the use of rhubarb or of senna—the urine being in this case naturally of an intense yellow or greenish-yellow tint—it acquires a yellowish-red to red tint. The reaction is obtained even more sharply if the urine is shaken with about one-half its volume of ether in a test-tube, and the test applied to the separated ether. The latter assumes a red color at the line of contact. On shaking, the red color is taken up by the solution of potassa.

The test with potassa alone is not certain. But it is important to know the fact that solution of potassa will produce a red color in such cases, in order to avoid being surprised by it, as it may be mistaken for reactions for blood, or for sugar, or for santonin. The modification above given (devised by Dr. Penzoldt) guards against these mistakes, since only chrysophanic acid, but not the other substances above mentioned, is taken up by the ether. If the ethereal solution does not separate easily from the aqueous solution after shaking, the addition of a few drops of alcohol will make it separate readily.

### 9. *Santonin.*

Santonin does not pass into the urine as such, but after its use (even after doses of only one and one-half grains in adults) the urine often acquires a greenish-yellow color, and there appears in it a substance, not yet fully known, which causes the urine to assume a red color when it is mixed with caustic potassa. It is distinguishable from the red color of rhubarb urine by being more of a rose-red character.

This difference of color is not sufficient to guard against a confusion with rhubarb-urine. The most characteristic distinction of santonin-urine is this, that santonin does not pass into the ether when shaken with the urine, while the chrysophanic acid does pass over.

### 10. *Copaiba.*

If hydrochloric acid is added to the urine after copaiba has been taken, the urine acquires a handsome red tint, changing to violet on heating. Chloride of lime or tincture of iodine facilitate this reaction. On boiling, a distinct resinous odor is developed.

This test is characteristic, quite sharp, and easy of execution. It is also useful to distinguish albuminous urine in which a turbidity forms by boiling and addition of acid from one in which the same phenomena are caused by the presence of copaiba.

◆◆◆

**South American Cinnamon.**—At the exhibition of South American products held at Berlin in the early part of this year, some cinnamon bark was exhibited, which Professor Tschirch considered fully equal in aroma and sweet taste to the Ceylon cinnamon. It was in pieces about 2 inches broad and ⅜ inch thick. The essential oil prepared from it by Tschirch could not be distinguished from that of the Ceylon bark, though the yield was inferior. This is due to the fact that the pieces are taken from older branches which have a bark rich in stone-cells and therefore poorer in oil-cells. It is very low in price and should have a promising future. It was exhibited by Guimares and Valente of Pernambuco.

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* "Aeltere und neuere Harnproben und ihr praktischer Werth." Von Dr. F. Penzoldt, Professor a. d. Universitat Erlangen. 2te Aufl. 8vo, Jena, 1886.

## EXTRACTION-APPARATUS FOR AQUEOUS LIQUIDS.

E. Grauer has designed a new form of apparatus for dissolving out, from aqueous liquids, such substances as are soluble in lighter or heavier solvents which are not themselves much soluble in water. For instance, when alkaloids are to be extracted from aqueous solution, or when oils or fats, or resinous substances are to be extracted. Two different forms of apparatus are designed according as the extracting liquid is heavier or lighter than water.

Fig. 1 illustrates the apparatus for heavier menstrua, in a schematic way. *A* is the reservoir for the heavy menstruum (bisulphide of carbon, chloroform, etc.). Another reservoir, at a higher level, *B*, contains the aqueous solution to be extracted. The faucet at *A* having been opened, the heavy menstruum will descend into the receptacle *C* and thence into the narrow coil, which may be made of any desired length. When the menstruum begins to rise in *a*, the faucet at *b* is opened, whereby the aqueous liquid is allowed to enter, which immediately, owing to its lesser specific gravity, will rise up into the coil, and in its passage upward be thoroughly extracted by the descending menstruum. The latter becoming saturated, or at least having extracted all that the aqueous liquid can yield, gradually flows over into *D*, where it is allowed to collect. From here it may be drawn over into the still (the circular figure in the cut) from time to time, the faucet at the bottom of *i* being opened for this purpose.

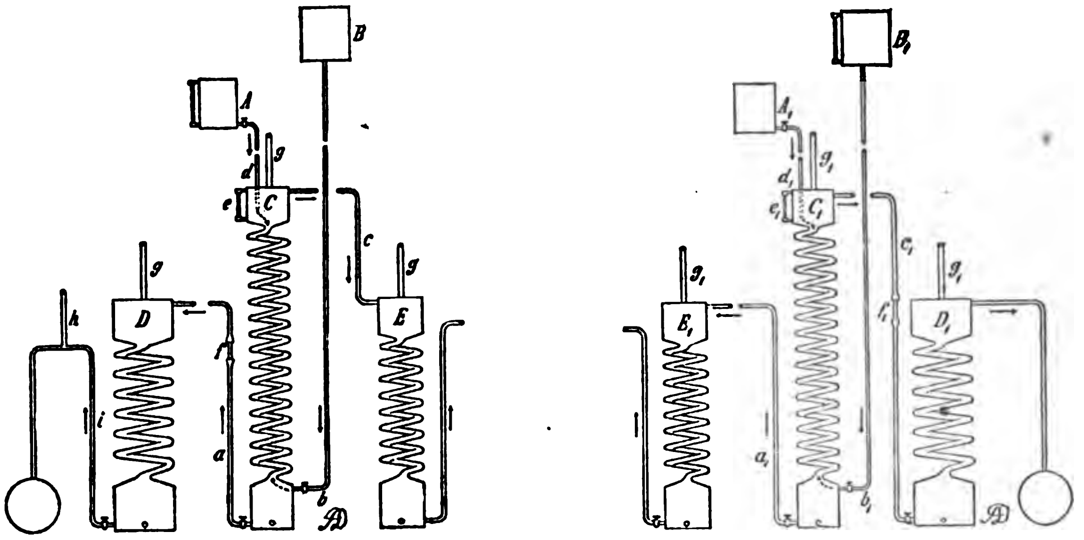


Fig. 1. Grauer's extraction apparatus. Fig. 2.

By the application of heat, the menstruum is then distilled off, and may be conveyed through *h* and a condenser (not shown in the cut) back into the the reservoir *A*.

Fig. 2 shows the arrangement of the apparatus for menstrua lighter than water. In this case, the aqueous liquid enters from above (*A*), while the menstruum, contained in *B*, enters from below, at *b*. As it passes upwards through the coil, it becomes saturated, collects on the surface of the aqueous liquid in the reservoir *C*, and passes out through *c*.

When using the apparatus, it is necessary to see that the heavier liquid running off below—in the former case the solvent, in the latter case the aqueous solution—is allowed to rise to such a height in the tube *a*, that an equilibrium is established between the two liquids. This may be readily seen by observing the glass gauge tubes *e* and *e*, in which *both* layers must be constantly visible during the operation.

The exhausted liquid, in both cases, passes out in a direction opposite to that of the menstruum. In Fig. 1, it passes out through *c* and collects in *E*, where it has further chance of separating any mechanically accompanying portions of the menstruum. In Fig. 2, the exit takes place through *a*.

The inventor of the apparatus, E. Grauer, states that he finds the following plan to be particularly serviceable for depriving the residuary aqueous liquid of the quantity of volatile solvent (chloroform, ether, etc.) which it retains in solution. He causes the liquid to pass through an opposing current of some high-boiling hydrocarbon or paraffin oil, which while insoluble in water, is yet capable of dissolving out nearly all of the retained menstruum.

In constructing an apparatus of this kind, it must be remembered that when two non-miscible liquids are brought and agitated together, either liquid will, to a certain extent at least, be diminished in volume to such an extent as it is soluble in the other. This must be taken into account when constructing the apparatus, so as to make allowance for the increase in volume, if this is considerable.—*Dingler's Pol. Journ.*, 262, 475.

## Note on Some Incompatible Mixtures.

J. Rutherford Hill writes the following note on two incompatible mixtures to the *Chem. and Drugg.*:

The first of these occurs in a gargle containing alum, chlorate of potassium, and bicarbonate of potassium. The aluminic sulphate in the alum reacts with the potassium bicarbonate, thus:

$$Al_2 3SO_4 + 6KHCO_3 = 3K_2SO_4 + Al_2 6HO + 6CO_2$$

| alumin. sulphate | potass. bicarb. | potass. sulphate | alumin. hydrate | carbonic acid |
|---|---|---|---|---|

In this way (if the bicarbonate is present in sufficient quantity), the astringent action of the alum is lost. It is, therefore, a case of both chemical and therapeutic incompatibility. The only way out of the difficulty is to suggest the omission of the potassium bicarbonate.

The second occurs in the following mixture:

| | |
|---|---|
| Quininæ Sulphatis | grs. xxiv. |
| Acid. Nitric. dil | q. s. |
| Potassii Iodidi | ℈ij. |
| Aquæ | ad ℥ vi. |

In this case, the nitric acid liberates iodine from the potassium iodide as follows:

$$4HNO_3 + 2KI = 2KNO_3 + 2H_2O + 2NO_2 + I_2$$

The liberated iodine combines with the sulphate of quinine to form the insoluble iodo-sulphate of quinine or herapathite which is gradually deposited as a greenish-brown sediment. The best thing to do in such a case is to substitute sulphuric for nitric acid.

## Distinction of Nickel, Tin, and Silver when used as Plating.

According to Leviton, the following simple methods may be used to determine the character of a plating, provided it is either nickel, or tin, or silver.

I. Heat a small spot of the surface with a flame. Then the following colors will appear successively:

*A.* In the case of *nickel-plating*:
  1. Yellowish-gray color.
  2. Violet tint by reflected light.
  3. Blue tint by reflected light.
  4. Uniform gray color, with green reflex.

*B.* In the case of *tin-plating*:
  1. Dirty yellowish-gray color.
  2. Faintly violet tint, rapidly disappearing in reflected light.
  3. Gray shading with spotted surface.
  4. Rough-looking surface, with distinct yellow patches.

*C.* In the case of *silver-plating*:
  1. No visible change.
  2. White, with sharply-defined violet dots.
  3. Suddenly gray, with white dots.
  4. Yellowish-gray, rough surface.

On introducing the plated surface into a solution of peroxide of hydrogen mixed with powdered binoxide of manganese, or on applying such a mixture to it, the three metals will be recognized as follows:

1. Nickel will assume a reddish-violet tint after about ten minutes.
2. Tin will acquire a scarcely perceptible dull gray color.
3. Silver will remain unaltered.

On adding a solution of sulphide of antimony moderately warmed:

1. The nickel surface will remain unaltered.
2. The tin coating will dissolve.
3. The silver coating will turn black.—*Journ. Chem. Soc.* and *Rundschau* (Prag).

## Selected Formulæ for Dressings.

AMONG the formulæ compiled or devised by Mr. Eugen Dieterich, and published in his *Neues Pharmaceut. Manuale*, we find a number of receipts for preparing antiseptic dressings, which we publish for the purpose of giving our readers an opportunity to compare them with other formulæ previously published. We have put on record a considerable portion of our own experience regarding *some* of these preparations, and shall have much more to say hereafter. We would remark here, however, that it is not enough, in all cases, to merely know the composition of the impregnating liquid. There are some points connected with the manipulation which it is well to know to obtain a satisfactory product.

1. *Benzoated Cotton* (Bruns, Jr.).

| | 3% | 4% | 5% | 10% |
|---|---|---|---|---|
| | | Parts. | | |
| Benzoic Acid | 40 | 60 | 75 | 150 |
| Castor Oil | 30 | 30 | 30 | 60 |
| Alcohol | 2,925 | 2,925 | 2,925 | 2,790 |
| Absorbent Cotton | 1,000 | 1,000 | 1,000 | 1,000 |

Saturate the cotton with the liquid, prepared after any of the given proportions, then press it until it weighs 3,000 parts, dry it at a heat not exceeding 86° F., and pick or card it.

*Note.*—Any prepared cotton should be kept in suitable receptacles or wrappers (glass, tin-foil, parchment, or paraffin-paper, etc.) to prevent loss by evaporation, or the accession of septic material.

2. *Borated Cotton.*

| | 5% | 10% | 20% |
|---|---|---|---|
| | | Parts. | |
| Boric Acid | 75 | 150 | 300 |
| Boiling Water | 2,925 | 2,850 | 2,700 |
| Absorbent Cotton | 1,000 | 1,000 | 1,000 |

Proceed as in No. 1, and dry with the aid of a moderate heat.

Mr. Dieterich directs to add ¼ part of fuchsine to the 20% solution. We are, however, decidedly in favor of reserving the fuchsine or any other red color to *poisonous* dressings, such as sublimate cotton or gauze. If *red* be used also for others, it will cease to be a distinctive token of dressings which ought to be used with caution.

Another matter is this, that boric acid, when it crystallizes upon the fibre on cotton, is very apt to fall off in form of dust. We have been in the habit of using a resinous tincture, sometimes with the addition of a little glycerin, to make the fibre more adhesive. A little tincture of benzoin or of olibanum will answer well.

3. *Carbolated Cotton* (Bruns, Jr.).

| | 5% | 10% |
|---|---|---|
| | Parts. | |
| Carbolic Acid | 75 | 150 |
| Castor Oil | 30 | 60 |
| Rosin | 300 | 450 |
| Alcohol | 2,600 | 2,340 |
| Absorbent Cotton | 1,000 | 1,000 |

Proceed as in No. 1.

4. *Chloride of Zinc Cotton* (Bardeleben).

10 per cent.

| | | |
|---|---|---|
| Zinc Chloride | 150 | parts. |
| Boiling Water | 2,850 | " |
| Absorbent Cotton | 1,000 | " |

Proceed as in No. 2.

5. *Cocaine Cotton.*

3 per cent.

| | | |
|---|---|---|
| Cocaine Hydrochlorate | 3 | parts. |
| Distilled Water | 100 | " |
| Alcohol | 50 | " |
| Absorbent Cotton | 100 | " |

Saturate with the liquid (the cotton being kept below it by means of weights, but on removal, it is to retain the whole of the liquid), and dry at 86° F.

6. *Cocaine-Borated Cotton.*

| | | |
|---|---|---|
| Cocaine Hydrochlorate | 2 | parts. |
| Boric Acid | 5 | " |
| Carbolic Acid | 3 | " |
| Glycerin | 10 | " |
| Alcohol | 50 | " |
| Distilled Water | 30 | " |
| Absorbent Cotton | 100 | " |

Saturate as in No. 5. Dry by exposure to air.

7. *Cocaine-Morphine Cotton.*

| | | |
|---|---|---|
| Cocaine Hydrochlorate | 3 | parts. |
| Morphine Hydrochlorate | 1.5 | " |
| Alcohol | 75 | " |
| Distilled Water | 75 | " |
| Absorbent Cotton | 100 | " |

Proceed as in No. 6.

This is used for tamponing carious teeth, to allay toothache,

8. *Ferrated Cotton.*

| | | |
|---|---|---|
| Solution of Ferric Chloride (sp. gr. 1,280) | 750 | parts. |
| Glycerin | 75 | " |
| Distilled Water | 1,175 | " |
| Alcohol (90%) | 1,000 | " |
| Absorbent Cotton | 1,000 | " |

Proceed as in No. 2.

Dry with exclusion of daylight, and keep the product in brown bottles.

9. *Acetate of Aluminium Cotton* (Burow).

| | 5% | 10% |
|---|---|---|
| | Parts. | |
| Sol. Acetate Aluminium | 1,000 | 2,000 |
| Distilled Water | 2,000 | 1,000 |
| Absorbent Cotton | 1,000 | 1,000 |

Proceed as in No. 2.

10. *Ichtyol Cotton.*

| | 20% | 50% |
|---|---|---|
| | Parts. | |
| Sulph-ichtyolate Ammonium | 300 | 750 |
| Alcohol | 700 | 750 |
| Distilled Water | 2,000 | 1,500 |
| Absorbent Cotton | 1,000 | 1,000 |

Proceed as in No. 1, drying at a temperature not exceeding 25° (77° F.).

11. *Iodoform Cotton* (Mosetig).

| | 4% | 5% | 10% | 20% |
|---|---|---|---|---|
| Iodoform | 60 | 75 | 150 | 300 |
| Ether | 600 | 750 | 1,250 | 2,000 |
| Rosin | .. | .. | 50 | 100 |
| Castor Oil | .. | .. | 50 | 100 |
| Alcohol | 2,340 | 2,175 | 1,500 | 500 |
| Absorbent Cotton | 1,000 | 1,000 | 1,000 | 1,000 |

In preparing these solutions and saturating the cotton, some rapidity must be used to prevent loss by evaporation. When soaked, each lot is best wrapped in parchment-paper, some holes made at the sides, and enough liquid pressed out until the residue weighs 3,000 parts. Dry by exposure to air.

*Note.*—As we have explained elsewhere, we prefer to make the fabric soak up the *whole* of a certain volume of iodoform solution containing just the amount of iodoform required.

12. *Naphthalin Cotton.*

| | 10% | |
|---|---|---|
| Naphthalin | 150 | parts. |
| Rosin | 30 | " |
| Castor Oil | 20 | " |
| Alcohol | 1,800 | " |
| Absorbent Cotton | 1,000 | " |

Dissolve with the aid of heat, soak the cotton in the hot solution, and quickly express to 3,000 parts. Dry by exposure to air.

13. *Salicylated Cotton* (Bruns, Jr.).

| | 5% | 10% |
|---|---|---|
| | Parts. | |
| Salicylic Acid | 75 | 150 |
| Castor Oil | 50 | 100 |
| Alcohol | 3,875 | 2,750 |
| Absorbent Cotton | 1,000 | 1,000 |

Proceed as in No. 1.

14. *Salicylated Cotton* (Thiersch).

| | 4% | 10% |
|---|---|---|
| | Parts. | |
| Salicylic Acid | 60 | 150 |
| Glycerin | 10 | 25 |
| Alcohol (90%) | 430 | 825 |
| Boiling Water | 2,500 | 2,000 |
| Absorbent Cotton | 1,000 | 1,000 |

Proceed as in No. 1.

15. *Sero-Sublimate Cotton* (Lister).

| | ¼% | |
|---|---|---|
| Corrosive Sublimate | 7.5 | parts. |
| Horseblood-Serum | 750 | " |
| Distilled Water | 2,250 | " |
| Absorbent Cotton | 1,000 | " |

Dissolve the corrosive sublimate by trituration in the blood-serum, add the water, and saturate the cotton with the liquid. Press out to 3,000 parts.

If horseblood-serum cannot be had, dissolve 7.5 parts each of corrosive sublimate and of chloride sodium, by trituration, in 40 parts of egg-albumen diluted with 2,950 parts of distilled water. Soak the cotton in this.

Dry at a temperature not exceeding 86° F., and keep it from the light.

16. *Sublimate Cotton.*

| | ¼% | ½% |
|---|---|---|
| | Parts. | |
| Corrosive Sublimate | 3.7 | 7.5 |
| Glycerin | 300 | 300 |
| Alcohol | 700 | 700 |
| Distilled Water | 2,000 | 2,000 |
| Absorbent Cotton | 1,000 | 1,000 |

Proceed as in No. 1.

17. *Thymolated Cotton* (Ranke).

| | 2% | 5% |
|---|---|---|
| Thymol | 30 | 75 |
| Rosin | 60 | 150 |
| Spermaceti | 410 | 475 |
| Alcohol (90%) | 2,500 | 2,300 |
| Absolute Alcohol | 1,000 | 1,000 |

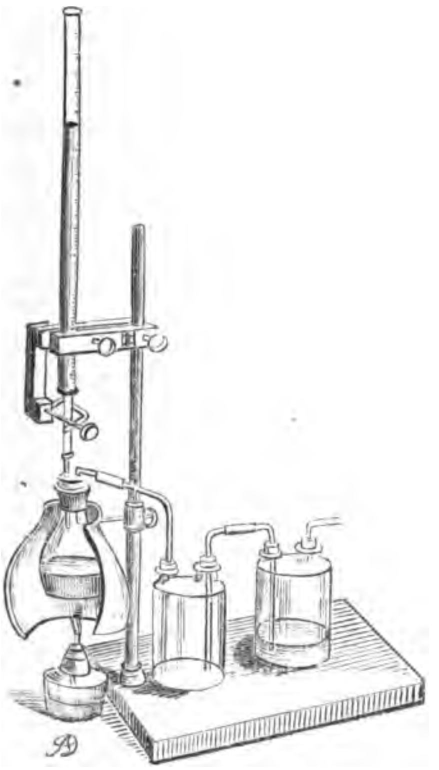
Dissolve with the aid of a gentle heat, saturate the cotton, express to 3,000 parts, and dry by exposure to air.

18. *Tannin-Carbolated Cotton.*

(Tannin, 10%; Carbolic Acid, 8%).

| | | |
|---|---|---|
| Tannic Acid | 150 | parts. |
| Carbolic Acid | 120 | " |
| Castor Oil | 230 | " |
| Alcohol | 2,500 | " |
| Absorbent Cotton | 1,000 | " |

Proceed as in No. 11.



### APPARATUS FOR ESTIMATING SUGAR.

The apparatus, recently described by A. W. Stokes in *The Analyst*, for the estimation of sugar contains several useful features which it will be of advantage to put on record, as they may be of benefit to our readers.

The alkaline copper solution (Fehling's) is contained in a burette which is connected by rubber and glass-tubing directly with the flask containing the liquid to be tested. The latter is closed with a rubber cork, through which passes the tube connecting with the retort, and also another leading to a Woulff's bottle. A screw pinch-cock of the shape outlined in the cut is preferred by the author, as it is more easily regulated while the flame is burning below the flask. The flask is half surrounded by about half of a white gas-globe or shade, which makes an excellent background to observe the tint of the liquid. This feature, as well as the prevention of loss by spattering, are the main advantages of the apparatus, so far as it is applicable in our judgment to the estimation of glucose. On the other hand, the radiation of heat from below may cause such an expansion of the liquid in the burette that a notable error may be introduced in this manner.

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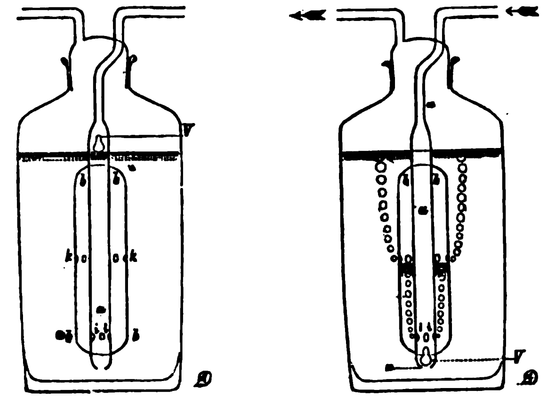
**Iodoform Pencils.**—Dr. Oscar V. Petersen, of St. Petersburg, recommends in the treament of syphilis pencils made of 50 or 70 per cent of iodoform, together with glycerin and gum arabic, and inclosed in a wooden holder. In the case of a chancroid ulcer, the pencil need only be applied to its surface which then becomes coated with a more or less thick layer of iodoform. The chief advantage of the method is that the patient remains absolutely free from an unpleasant and tell-tale odor.—*Brit. Med. Journ.* and *Chem. and Drugg.*

### AN IMPROVED WASH-BOTTLE.

In order to insure the perfect washing of a current of gas, it is often desirable to pass it through more than one wash-bottle. This may, however, be avoided by using the apparatus here illustrated, which has been designed by Greiner and Friedrichs, of Stützerbach in Thuringia (Germany).

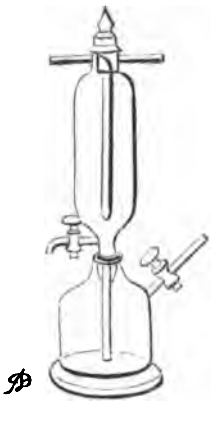
Fig. 1 shows the flask charged with wash-fluid, but not in operation. The stopper, exit and delivery tube, and the inner washing apparatus are all of glass, and one piece. The inner tube, *a*, contains a float, *V*, which is seen in Fig. 1 to float on the surface of the water. When gas passes down this tube, the float is pushed to the lower orifice (see Fig. 2) and closes it, thereby compelling the gas to pass out through the holes, *i i*, and to enter the liquid in the external tube *b*, from which it finally escapes by the apertures *k k*. Thus it will be seen that the gas is compelled to pass through two layers of liquid. As soon as the current is interrupted, the float *V* will rise, and thereby clear the orifice of tube *a*, in consequence of which the liquid contained in the body of the flask will soon mingle uniformly with that contained in the wash-tubes.



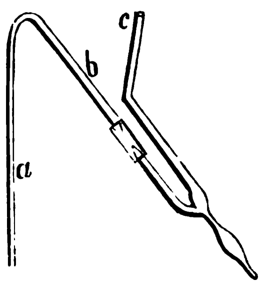
Greiner and Friedrichs' wash-bottle.

### ABSORPTION- AND WASH-BOTTLE.

To prevent gases which are to be absorbed or washed by some liquid from affecting the ordinary corks or rubber stoppers with which wash-bottles are usually stoppered, an absorption vessel wholly constructed of glass has been designed by Greiner and Friedrichs. Its construction is easily intelligible from the cut. The lower vessel serves as a reservoir for the wash-liquid. By blowing air into the lateral tube of the lower vessel, some of the liquid is driven into the upper vessel, or wash-bottle proper.—*Chem. Zeit.*, 11, 112.



Greiner and Friedrichs' wash-bottle.



Brilka's siphon.

### A NEW SIPHON.

Brilka has devised a new siphon which is based upon the same principle as the injector. On blowing into the open end *c* of the shorter tube, the air escaping below will cause a rarefaction of the air contained in the longer leg *a* of the siphon proper, which dips into the liquid to be drawn off. In consequence of this, the liquid passes over and continues to run off, as in any other siphon. As the instrument is started by blowing, and not by suction, there is no danger of any of the liquid being drawn into the mouth.—After *Chem. Zeit.*, 1887, 187.

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**Improved Hectographic Prints.**—According to the *Pharm. Centralhalle*, the distinctness and sharpness of hectographic prints may be very materially heightened by wetting the paper upon which the prints are to be made with alcohol, and removing the excess of alcohol by pressing between blotting paper.

### Production of Pulque and Mescal in Mexico.*

PULQUE and mescal, which are fermented and distilled liquors with a great variety of modifications, are made from the sap and root of the maguey plant or aloe, known as the *Agave Americana*. This plant, in some thirty varieties, grows wild throughout Mexico, and in many districts it is carefully cultivated. It enters into the domestic economy and habits of the Mexicans, and forms one of the most useful products of the republic. Its most important production is the fibre yielded by the long, narrow serrated leaves when pressed, and this fibre is said to be almost equal in quality to the best Yucatan heniquen, or jute. Ropes of great strength are made from some varieties of the plant growing in special localities, but the pressed leaves are everywhere of importance for the manufacture of paper. For many centuries past, textile fabrics have been made from them by the Indians. It is stated, in a report of the United States Agricultural Department, that the Mexican Government is liberally encouraging the paper manufacture, and a large company has been organized to cultivate maguey plants on Government lands. The list of products furnished by the maguey is very large, and besides pulque, or Mexican beer, and mescal, the chief spirit of the country—a distillation resembling a coarse quality of gin, and very intoxicating in its character—there is a fine quality of brandy, known as *tequila*. The daily consumption of pulque, or beer, in the city of Mexico alone appears to be about 150,000 quarts, and it appears to be the universal beverage of the country. Being in strength about equal to common cider, it is of whitish hue, and has a slightly acid taste, with an odor which makes it very disagreeable to all but the natives. A maguey plant will reach its maturity in from five to ten years, and grows most rapidly in the warm sections, though not so luxuriantly in the hot coast belts. Large quantities of mescal are produced in the State of Oajac, and *tequila*, or maguey brandy, comes chiefly from the district of the same name, in the State of Jalisco. *Tequila* is highly valued on account of its purity and strength. The Mexican Indians are said to be inordinately fond of pulque; it is consumed in large quantities, and forms the basis of a great number of liquors, all of which are intended to make it stronger or more agreeable. Pulque is made a source of large domestic revenue by all the States; the daily tax paid on it at the gates of the city of Mexico is estimated at about £1,000. Another liquor produced direct from the maguey is known as hydromel, or honey juice, being the pure and unfermented juice or sap of the agave. *Pulque de chirimoya* is made from the hydromel of the cultivated agave, cut unripe at the age of three or four years. This is put into skins which have contained the "mother," or pulque made at the regular age, five years and upwards. When transported, the shaking gives it flavor and strength. A choicer liquor is made by heating, underground, old heads of agaves, grinding them coarsely on a stone, and then settling them to ferment in a pulque vessel, after which the contents are distilled. The first jar is known as *bingeré*, and the rest as *bingarroté*. *Pulque tlachique*, a favorite beverage, is made from tender agaves, cut when unripe. There are various admixtures made in connection with this. It is quite thick, and *quahchan* is the same, with the fruit of the Peru tree, deprived of its peel, and left in the liquid for three or four days. *Capololte* is made of the same variety of the pulque, with the seed of the red Peru tree infused therein. After fermentation, it is hot and noxious. A species of mescal is made by distilling *pulque tlachique* and molasses, after being allowed to ferment in goat-skin vessels. In addition to these, there are about seventeen other compounds made by mixing sugar and sweet almonds ground with the juice of corn-stalks, sugar or honey being added; by mixing white pulque with blackberries, capulins, pepper, and sugar; by mixtures of prickly-pear juice, and fermenting or distilling the same; by adding to white pulque honey, pepper, anise, and capsicum, leaving the same to ferment for twenty-four hours; by mixing pulque with wild plums (*jabos*) and sugar. *Mantequila* is made of pulque, brandy, and sugar. A wine named *rescado* is made of the trunks of agaves deprived of leaves, cooked in an oven for about a fortnight, then mashed and put with pulque into skins, to which is added mountain hysop, and the liquid is left for two days. *Tepemé* is a wine or liquor produced from the pressed leaves of the narrow agave, in which acacia wood is boiled, in order to give it strength. *Mescalde guadalajara* is made by first fermenting in skins, water, honey, and agave heads, and then distilling the liquor. The maguey plant, from which the pulque is made, grows as high as ten or fifteen feet, and the miel or juice is sucked up through a siphon made of a large gourd with a cow's horn in it, which is called *acajete*. Accompanying the men whose business it is to collect this juice, and who are called *thachiqueros*, are donkeys, which have their backs laden with sheep skins, into which the juice is poured after being sucked up by the siphons. The plant is prevented from flowering at the age when it usually yields pulque, and during its growth it throws out shoots or young plants, which are removed from the parent plant when about three feet high, that is, after two years' growth. These are planted out at a distance of a yard apart. The *thachiqueros* go periodically among the plants, and mark those which are fit for tapping by cutting a cross on the top of the highest stalk of each plant. When the maguey is fit for tapping, the *thachiqueros* trust aside the spiky stalks, and cut out the meyolote or central spoke, leaving a cavity which they visit after eight days, when it is full of juice. The plants only begin to yield juice when the flower stalk is on the point of its development, and this is generally discovered by the direction of the radical leaves. When the flower stalk is on the point of formation, these leaves rise from the earth to which they are inclined, and endeavor to form a junction, so as to protect the flower. They become also of a clearer green, and there are other signs which are closely watched by cultivators. The maguey, after the expiration of eight days, is tapped regularly three times a day, and yields over a gallon a day, and bears for three months, each plant producing about one hundred and twenty gallons before it dies. The juice, when extracted, is conveyed to a large building fitted with square wooden frames, on which are stretched cowhides shaped like vats, the hair being upwards. The liquid appears to curdle during fermentation, and has an offensive odor; fresh juice is applied three times a day, and when drawn off, the liquor is placed in barrels and sold to the pulqueries, or drinking-places. The city of Apam produces the finest pulque sent to the city of Mexico, and this sells readily at about fourpence a gallon. The maguey will flourish on the most arid and rocky soils, is not affected by drought, hail, or even severe frosts, and the plant is used for almost every domestic purpose, from making intoxicants to the thatching of huts.

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* From the Journal of the Society of Arts.

### Picrate of Ammonium in Malarial Diseases.

DR. H. MARTYN CLARK, of the Amritsar Medical Mission, Punjab, has treated no fewer than 10,000 cases of malarial diseases with picrate of ammonium, and in half the cases he has kept a record. In nine cases out of 5,000 did the picrate fail, and in these quinine cured at once. The usual dose is from ⅓ grain to 1⅓ grains four or five times a day in pill. Half a grain is a fair average dose. Thus given the result is soon visible. In the great majority of the cases treated, ⅓-grain doses in the interval prevented the recurrence of the next attack of the fever, while in about 20 per cent of the patients two or three attacks followed before the fever ceased. In only one case of quartan ague, despite large doses of the salt, the fever recurred for six periods, gradually diminishing in intensity, and then yielded to it. It is equally successful in all forms of ague, but it is a curious fact that the cases in which it failed to cure were all of the tertian variety. Dr. Clark has also employed this agent in the treatment of twenty-five cases of malarial neuralgia of various nerves, six cases of malarial headache, and one of malarial colic. In all these cases it cured completely and speedily. In addition to being cheaper and given in smaller doses, picrate of ammonium does not produce the unpleasant effects that quinine does, such as headache, deafness, tinnitus, etc. Nor does it, like quinine, disorder the digestion or cause nausea as quinine does in India.—*Chem. and Drugg.*

**German Export of Ether and Picric Acid.**—Last year 375,700 kg. of ether and collodion were exported by Germany, against 1885, 704,400 kg. Of this total France was the recipient last year of 158,000 kg., against 1885, only 3,700 kg., or an increase of 154,300 kg. Picric acid was exported during 1886, having a weight of 53,300 kg., against the previous year 32,700 kg., or an increase of 20,600 kg. For January this year the export of ether shows an increase of 17,800 kg., and that of picric acid about 7,400 kg. This increase is mainly due to the developed export trade with France in these materials, as in February 22,800 kg. ether and 10,000 kg. picric acid were exported to that country, against January, 1886, only 300 kg. of ether; the export of picric acid being *nil*.—*Kuhlow's Ger. Trade Rev.*

"THE English papers print a report concerning the alleged purchase, on a scale of unprecedented magnitude, of picric acid and sulphuric ether by the French Government. The substances in question are said to be employed in the manufacture of that mysterious explosive known as mélénite, the secret of which is supposed to be in possession of the French War Office. The German daily press has recently confirmed the truth of the reported purchases so far as Germany is concerned, and one paper even named the well-known Berlin "Chemische Fabrik, vormals E. Schering," as being the principal contractor for sulphuric ether. It was added that the managers of the Berlin works, as soon as they became aware of the purpose for which the chemical was required, communicated with the German Government, in order to ascertain whether the continued sale of sulphuric ether to the French War Office was consistent with German interests.

To this communication, it is said, the reply was received that no objection whatever would be raised to the sale of the ether."—*Dingl. Pol. J.*

## NEW THERMO-REGULATORS.

George W. A. Kahlbaum's thermo-regulator consists of of a U-shaped glass-tube, one leg being only half the the length of the other. The longer leg has a lateral tube fused to it, through which the gas passes to the burner. At the orifice of the longer leg, a brass neck is affixed, through which passes a bent glass-tube *CD*, obliquely cut off below, and bearing on one side a ratchet attachment, which engages the teeth of the cog *K*, the latter being revolvable by means of the milled screw visible behind it. At the lower end of the ratchet, a cork is attached, which is raised or lowered with the tube, and which must slide readily up and down, while being at the same time gas-tight. A little below the cork, the tube *CD* has a small hole to permit a little of the gas to pass through the burner even when the main supply is cut off. The neck of the smaller end is slightly flared outwards, and a rubber ring passed around it, which serves as a washer for a metallic cap applied outside and provided with a lid which can be screwed down hermetically. When the apparatus is to be prepared for use, it is charged with mercury to within about four centimeters of the orifice of the shorter leg. Next a column, about two centimeters high, of a volatile liquid of such a nature that it will be converted into vapor at the temperature to be obtained by the apparatus, is poured on top of the mercury. The tube is now inclined so as to bring the contents of the short leg to the very orifice, and a cork, about two centimeters long, so pushed down upon it, which is then cut off square at the top. The brass cap is then screwed down tight.

*C* is connected with the gas supply, and *E* with the burner under the apparatus. As soon as the generated temperature has converted the inclosed volatile liquid into vapor, the latter depresses the mercury on its own, and raises it on the other side, until it shuts off the supply of gas at *CD*. By regulating the height of the latter tube, any desired temperature may be obtained and maintained. The outer tube *A* has a mark *ab* scratched upon it. This serves to adjust the tube *CD* to any given or predetermined height, and therefore to any previously determined temperature.—*Ber. d. Deutsch. Chem. Ges.*, 1886, 2,860.

### Improvements in Morphiometrical Assay.

In a lengthy paper "On the Analysis of Opium," Mr. Charles M. Stillwell gives a detailed description of an improved method, of which we give only the salient points of the process, excepting the chief improvement proposed by the author, namely, the new "Washing Solutions," which we give in full:

1. *Sampling.*—Take a portion of every tenth lump in a case.

2. *Preparing the Sample.*—Mix the small samples thoroughly, either by kneading or rolling; or by drying with previous estimation of the water.

3. *Extraction of the Morphine.*—Weigh off about 10 Gm., noting the exact weight taken. Treat this with 100 C.c. of water in a suitable vessel, macerate, let stand one night, filter and wash, making two portions of the filtrate. Evaporate on a water-bath, first the weaker portion, about 70 C.c. of the solution, then add the stronger portion, and evaporate all to 25 C.c. Add 5 C.c. of alcohol, and stir until all is dissolved.

4. *Precipitation of the Morphine.*—Transfer the solution to a suitable flask, add 5 C.c. more of alcohol, and mix. Then add 30 C.c. of ether (spec. grav. 0.728 at 15.5° C.= 60° F.), and mix. Then add 4 C.c. of a 10-per-cent water of ammonia, spec. gr. 0.960. Shake violently until the crystals form, and let stand over night.

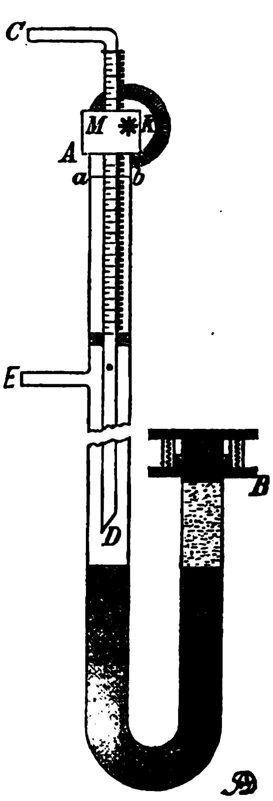
5. *Filtration of the Morphine.*—Filter off, first, the ethereal solution, and wash well with ether. Then filter the aqueous solution and wash, first, with "*morphiated spirit*," then with "*morphiated water*," then with "morphiated spirit," and finally with ether. Dry at 100° C. (212° F.) and weigh, using balanced papers.

6. *Purification of the Morphine.*—Treat the impure precipitate with hot alcohol until all the morphine is dissolved. Wash thoroughly with hot alcohol, dry, and weigh the insoluble residue. Subtract this from the first weight of the precipitate to get the amount of morphine present.

7. *Statement of Results.*—Give the percentage of moisture present at 100° C. (212° F.), and of morphine, both on the wet and dry basis, in terms of crystallized morphine: $C_{17}H_{19}NO_3H_2O$ [mol. w. 303] dried at 100° C.

In the detailed execution of that portion of the process which involves the washing of the precipitated morphine, several difficulties are met with. The amount of ether recommended by Dr. Squibb is so small that in some cases where the filtration proceeds with great difficulty, much of the ethereal solution is evaporated from the edges of the filter paper, leaving its contents behind, and these are not thoroughly washed out by the subsequent treatment. The amount of water also is, in the opinion of Mr. Stillwell, too small to allow of perfect washing. We shall now quote his own words :

"In order to obviate these difficulties, I have adopted a plan for which I am indebted to a paper published by E. F. Teschemacher, F.C.S., etc., in the *Chemical News*, Vol. xxxv., p. 47. The first solution, which he calls "*Morphiated Spirit*," is made by mixing one part of ammonia solution, sp. gr. 0.880, with twenty parts of alcohol, and digesting in this mixture for several days a large excess of morphia. The clear solution will contain 0.33 per cent of morphia. The second solution, called "*Morphiated Water*," is water saturated by long shaking with morphia. The filtered solution contains 0.04 per cent morphia. By washing with these solutions, the extractive matter is completely removed from the filter-paper, and crystals of morphia. I prefer to use balanced filter-papers of 4⅓ inches diameter. The solution is run through one of these, and, by means of the thorough washing with the solutions above described, the two papers are left, at the end of the operation, ready for weighing against each other, as at first. I pour off the ethereal stratum through the filter, as above described, and then wash several times with 10 C.c. of ether, rinsing the flask around without shaking, and letting settle for a few minutes. Even if a small amount of the ethereal residue is left upon the paper by evaporation, it is immaterial, as in the subsequent treatment this is removed. A small siphon is advantageously used to draw off the ethereal solution from the Erlenmeyer flask, but if an attempt be made to siphon off the ethereal washings, it will be found that the bubbles formed in the ether collect in the tube of the siphon and prevent its action, so that it is better to wash by decantation. If some of the aqueous solution pass into the filter with the ether it is of no importance. The washing with ether is followed, first, by a thorough washing with the "*Morphiated Spirit*," thus removing all the coloring matter and resin soluble in this menstruum, and then by a thorough washing with the "*Morphiated Water*," until the filtrate comes through colorless, and the paper shows by its color that all the extractive matter is removed. By the use of the Erlenmeyer flask it is possible to remove with the rubber-tipped rod all the crystals from the flask, so that no drying and weighing of the flask is needed. After the washing with the "*Morphiated Water*" the filter is left to drain for a few minutes in the funnel, and two washings of 10 C.c. each with the "*Morphiated Spirit*" are given. This removes the bulk of the water from the paper and crystals. Let drain for a few minutes, keeping the funnel covered with a watch glass, and then wash twice with 10 C.c. each time of ether. This will remove any narcotine which may have been left from the evaporation of the ethereal solution at the beginning of the operation. The paper and contents are thus left in a condition to be rapidly dried. Let the filter and its contents stand exposed for a few minutes, and then dry at 100 C.c. and weigh. Twenty minutes or half an hour's drying is usually sufficient.



Kahlbaum's thermo-regulator.

"On account of the removal of the water, it is possible to dry the filter and its contents in a short time at a much lower temperature than 100° C.; but as it is easier to employ this heat, and no decomposition of the morphia crystals occurs, I use it. A precipitate of morphia crystals was dried for two hours at 60° C., yielding a weight of 1.306 grammes. It was further dried for three hours at the same heat, and then weighed 1.305 grammes; still further dried for two hours at 100° C., it became 1.308 grammes.

"The mother-liquor, together with the first washings of ether and "*Morphiated Spirit*," is put in a flask, 3 C.c. of ammonia added, and the corked flask is set aside over night, in order to see if a further crystalline precipitate of morphia occur. If the solution is left exposed in an open beaker, amorphous flakes will settle out, consisting chiefly of resinous matter, very different from the heavy crystalline deposit of morphia.

"Having thus obtained the weight of the crystalline precipitate, it is still necessary to further purify it before the final calculation is made for the per cent. The precipitate of morphia obtained by Dr. Squibb's process contains insoluble matter, resinous and other organic matters, soluble in alcohol, and meconate of lime, the latter constituting about 25 per cent of the impurities present. The average amount of the impurities present in the crystals obtained by his process is 8 per cent of the weight of the crystals. The meconate of lime extracted by the acid solution of the opium is retained in solution until the addition of the ammonia, when it is precipitated with the crystals of morphia, and remains with them until the final weighing. The resinous and other organic matters, insoluble in water, but soluble in alcohol, are not thoroughly removed with the limited washing given in his process, and no provision is made for their subsequent removal. The thorough washing with "*Morphiated Spirit*," which I employ taking out these substances, and the subsequent treatment with "*Morphiated Water*" removes those insoluble in alcohol, so that the chief impurity present in the crystals of morphia obtained by my modification of the process is meconate of lime, together with some organic matters insoluble in water and alcohol.

"*Purification of the Precipitate.*—After drying and weighing the crystals, they are carefully rubbed or brushed from the filter, the latter being then placed in a funnel and preserved, with its balanced paper, for future use. The precipitate is treated in a small beaker with hot alcohol of 95 per cent. This dissolves all the morphia, leaving the insoluble organic matter and meconate of lime. The hot alcoholic solution is run through the filter which contained the morphia, the small portion of the crystals remaining on the paper being thus drenched with hot alcohol, and the morphia dissolved. This treatment with hot alcohol is continued until all the morphia is dissolved. This extraction with alcohol may be done in a Soxhlet's apparatus, if desired. The filter is then dried, with its balanced paper, and the amount of residue obtained. This is subtracted from the original weight of the precipitate, and the remainder calculated into the per cent of morphia. The alcoholic solutions of morphia are placed in a bottle and left to deposit the excess of morphia; and the alcohol, saturated with morphia, is used for the preparation of the "*Morphiated Spirit*," as above described. Meconate of lime I found to be perfectly insoluble in boiling alcohol. A long treatment with this solvent failed to dissolve enough meconate of lime to give a trace of color with ferric salts."—After *Am. Chem. Journ.*, Vol. 8, No. 5.

## On Quinine Tests.

THE question of quinine tests, which has recently been made a very prominent one by Dr. de Vrij, who showed that even the best commercial kinds of sulphate of quinine contained much more of secondary alkaloids (chiefly cinchonidine) than had been suspected, is likely to engage the attention of pharmacists and chemists for some time to come. Not long ago, we published de Vrij's improved chromate test. This has, since then, been slightly improved by Schlickum. Instead of quoting the full paper of the latter, we will give the salient portions of a paper by Dr. Vulpius in the *Pharm. Centralhalle* (1887, No. 4) referring to the subject. He says:

"Hesse makes the interesting revelation that the solid substance which is seen to separate when a sample of impure quinine is tested by means of Kerner's, or Hesse's, or the bisulphate test, is *not pure cinchonidine*, as seems to have been heretofore assumed, but that these crystals represent a compound having the formula:

$$C_{20}H_{24}N_2O.2C_{19}H_{22}N_2O,$$

consisting, therefore, of 2 molecules, or 64.5% of cinchonidine, and 1 mol., or 35.5% of quinine. If these statements are correct, as may be assumed from the reputation of the author, it follows that the quantitative estimations of impurity in commercial quinines, which have hitherto been made, based upon the above tests, have been one-third too large. In consequence of this, it is not to be wondered at that Hesse does not attribute great weight to the recently published reports on the percentage of impurity in quinine. Nevertheless, he pleads for the acceptance of a quantity of cinchonidine up to four per cent from an economical standpoint, which is, however, not acceptable either to the pharmacopœia or to pharmacists, particularly as there are several German makers of purer quinine at but slightly advanced cost.

De Vrij recently defended his lately published *chromate* test (see our February number, page 28) against objections raised by others. At the same time, he introduced a modification calculated to prevent the small quantities of quinine hydrate, which sometimes separate upon the concentration of the mother-liquor from the chromate, from being mistaken for cinchonidine. The modification is simply this, that the mother-liquid is not to be concentrated at all, but merely mixed with a drop of solution of soda, and then warmed in a flask on the water-bath. If the sulphate of quinine contains over 4% of cinchonidine, the liquid becomes turbid already at 40° C. (104° F.); if 2% are present, at 25° C. (77° F.). But if the liquid is free from cinchonidine, it remains clear even at a boiling temperature.

Schlickum has succeeded in modifying De Vrij's method so that it may be executed with ease and dispatch. As finally settled (in *Pharm. Zeit.*, No. 3), it is as follows:

### *De Vrij's Chromate Test Modified by Schlickum.*

Place 0.5 Gm. of the sulphate of quinine in a test-tube with 10 Gm. of water, and heat to boiling. Add 0.15 Gm. of powdered chromate of potassium, and set the test-tube aside during four hours, repeatedly agitating. Then filter and add to the filtrate *one* drop of a solution of soda [spec. gr. 1.160], which should not cause the separation of any visible solid matter, either at once or in the course of one hour. [Schlickum points out that while a shorter time may be sufficient to cause the separation of crystalline chromate of quinine, so far as is at all possible, it is yet advisable to allow four hours to elapse before filtering. A longer time may perhaps be still more advantageous.]

On examining artificially prepared mixtures of sulphate of quinine with one per cent of the sulphates of quinidine, cinchonine, and cinchonidine by the above-mentioned method, I at once obtained a strong turbidity upon the addition of the soda in the case of quinidine. With cinchonine, I obtained a notable amount of crystalline flakes after a few minutes. With cinchonidine, however, it required about an hour to produce small and rather indistinctly visible flakes, which became more easily distinguishable on raising the amount of cinchonidine to two per cent. The execution of this test is so easy that it is, under all circumstances, applicable to the detection of quinidine and cinchonine. As to cinchonidine, a parallel experiment should be made with chemically pure sulphate of quinine. If both samples are placed in the proper light, any resulting turbidity in the suspected sample may be easily detected.

De Vrij himself, however, has already published a similar modification of his test. He triturates 2 Gm. of the sulphate of quinine to be tested with gradual addition of 200 Gm. of water, transfers the mixture to a glass vessel, adds a solution of 0.5 Gm. pure chromate of potassium in 20 Gm. of water, shakes energetically during five minutes, then transfers the whole to a filter and, having added *one* drop of soda solution to the filtrate, heats the latter to boiling. On cooling, the liquid will remain clear if the quinine was pure; but if other alkaloids were present, the liquid will be more or less turbid. Mixtures of sulphate of quinine with 2 per cent of cinchonidine sulphate, when thus tested, and though cooled to 0° C., yielded satisfactory results only when cinchonine was present. In the case of quinidine and cinchonidine, however, the results were doubtful. Consequently, the above modification appears to be made at the sacrifice of exactness.

After all, I am inclined to prefer the *oxalate* method, based on a similar principle, and devised by Schaefer. Shimoyama already utilized the different solubility of the oxalates of the cinchona alkaloids for the purpose of determining them quantitatively. According to him the several oxalates require for solution:

| | | | | |
|---|---|---|---|---|
| Oxalate of | Quinine................ | 1,030 | parts | of water |
| " | " Cinchonidine........... | 250 | " | " |
| " | " Quinidine............. | 150 | " | " |
| " | " Cinchonine............. | 100 | " | " |

at ordinary temperature.

Comparing with these figures the rate of solubility of the alkaloids themselves [quinine requires less water for solution than its oxalate; the other alkaloids require more than their respective oxalates], it follows that a *saturated* solution of oxalate of quinine, when treated with soda, will not precipitate any quinine. On the other hand, soda produces such a precipitate already in *unsaturated* solutions of the other alkaloids. Hence, if a solution of sulphate of quinine is converted into oxalate by precipitation with an alkali oxalate, the filtrate will not be rendered turbid unless it contains some of the other alkaloids.

The test is performed, according to Schaefer, as follows:

*Schaefer's Oxalate Test.*—Boil 2 Gm. of the sulphate of quinine with 55 Gm. of water in a tared flask for a few minutes, then add a solution of 0.5 Gm. of neutral crystallized potassium oxalate in 5 Gm. of water, add enough water to bring the total weight to 62.5 Gm., set aside on a water-bath at 20° C. (68° F.) for half an hour, repeatedly shaking, transfer to a filter, and mix 10 Gm. of the filtrate with 1 drop of solution of soda. Neither a cloudiness nor any other separation should take place.

On testing a sample of pure quinine according to this method, the liquid remained absolutely clear, but if only *one* per cent of any *of the other three alkaloids* was present, it became at once *strongly turbid* after addition of the soda.

No one will probably want to use a test, for practical purposes, which will show *less* than *one* per cent of other alkaloids. On the other hand, the test may be made less exacting either by taking less of the quinine salt, or by using more water.

The value of this test lies in the fact that it reveals *all* of the secondary alkaloids with nearly the same certainty, and even when present in minute quantities. It has the disadvantage that it requires the use of a watch and thermometer, and a new reagent, viz., potassium oxalate.

Both of the methods above described are also directly applicable to hydrochlorate of quinine.

For the benefit of those who wish to employ the oxalate method, it may be added, that, after precipitating with potassium oxalate, it is best to cool the contents of the flask by a stream of water at 20° C. applied to the latter before placing it on the water-bath at 20° C., as this will prevent the latter from acquiring a higher temperature from the flask.

Dr. Vulpius concludes his paper with the remark that, in his opinion, the problem of testing commercial sulphate of quinine for its purity has been practically solved. We might add, however, that, in our judgment, the last word has not yet been spoken, there being already several prominent authorities at work to improve the existing methods still further.

### Note on Norwegian Cod-Liver Oil.

THE *Chem. and Drugg.*, in an editorial on this season's crop of Norwegian cod-liver oil, says:

Statistics respecting the amount of oil yielded by this season's catch are somewhat varying, but we have every reason to believe that the figures given in our last trade report were as nearly as possible correct. These figures comprised the oil produced until February 12th, but they referred only to the fishing in Lofoden proper, and did not include that at Vesteraalen, Nordmöre, and Söndmöre. Including the latter localities, the total yield up to March 3d is computed at 1,650 barrels (39,600 gallons), against 6,100 barrels (146,000 gallons) up till March 5th, 1886. Another report places the yield very slightly lower; but, taking even the large figure as the correct one, it is clear that the fishing during that part of the season which has now passed has scarcely yielded one-fourth of that of the corresponding part of the previous year. The weather in the Lofoden has not been very cold this season, but extremely stormy. On many days it has been impossible for the boats to put to sea; on other occasions, gear and net have suffered severe damage, and the violence of the gale has now and then been such as to destroy several of the small buildings in which certain operations connected with oil-refining are carried on. Telegrams received in London this week report a continuance of unfavorable weather.

Towards the end of March, the cod commence to make their appearance further northwards on the Finmarken coast, and the Lofoden fishing generally declines a fortnight or so afterwards, while the Finmarken season lasts until well in May or even June.

The Finmarken yield is decidedly below that of the Lofoden, so far as quality is concerned, the fish becoming leaner as the season advances, while, as a rule, the quantity produced in Lofoden is also larger.

### Detection of Hydrocyanic Acid.

TRACES of hydrocyanic acid may be detected in the following manner:

The liquid supposed to contain the acid is treated with a few drops of potassium-nitrate solution, from two to four drops of ferrous-sulphate solution, and so much diluted sulphuric acid, until the yellow-brown color of the basic ferric salt formed is just changed into a light-yellow. The liquid is then heated to boiling, and afterwards allowed to cool. The iron in excess is precipitated with a few drops of ammonia, filtered, and the filtrate tested with one or two drops of dilute, colorless ammonium sulphide. If hydrocyanic acid was present in the original solution, the liquid at once assumes a violet color which changes in a few minutes into blue, then green, and finally into yellow. Very minute traces of hydrocyanic acid produce a bluish-green color, which soon changes into greenish-yellow. 0.000032 Gms. hydrocyanic acid in 10 C.c. of water can be thus detected.—*Jour. Soc. Chem. Ind.* and *Chem. and Drugg.*

### Salicin.

THE editor of the *Chemist and Druggist* (Feb. 5th), commenting upon the recent sudden advance in the price of salicin, which appears to be entirely due to speculation, makes the following remarks upon the sources it is obtained from:

"The supply of willow bark is limited, but is practically sufficient for all requirements. Though obtainable from more than twenty species of Salix, there are only a few which yield it in sufficiently large quantity for manufacturers' purposes. *Salix alba*, *Salix Caprea*, and *Salix pupurea* are the principal species operated upon, while certain kinds of poplar bark also yield sufficient salicin to be worth working. The bark is obtained principally from Germany and America. Although it grows abundantly in this country, most of the bark which has been tried, even of species which generally yield salicin, has been found useless. For example, the bark of several trees of *Salix purpurea* which grew near a chemical factory was tried, but it yielded nothing. The process of manufacture is very simple. The bark is placed in large cylindrical iron tanks into which steam is passed; this condensing forms a concentrated infusion, which is drawn off and treated with lime to remove tannin and coloring matter. The clear liquor is then passed to the crystallizing vats, the crystalline deposit afterwards collected, placed in calico bag, and subjected to hydraulic pressure, whereby residual coloring matter is pressed out. The semi-dried matter is afterwards re-crystallized. Some time ago an attempt was made to utilize the spent bark for paper-making, the fibre being tough and of considerable length; but whether the attempt proved successful or not has not transpired. The proposal was not due to the low price of salicin, but to the unmanageableness of the waste bark, which manufacturers have either to burn or cart away at considerable expense."

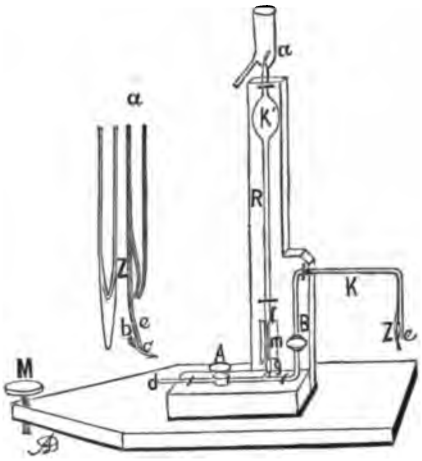
## AN ACCURATE PIPETTE WITHOUT GRADUATION.

WHEN the same volume of a liquid is to be measured off very frequently, or when an apparatus is to be set up which delivers always the same volume of a certain reagent, the ungraduated pipette, designed by A. Beutell and F. W. Dafert, will render excellent service.

That part of the apparatus which constitutes the pipette proper is the twice bent tube *K*, from *B* to *Z*. Its orifice at *e* has a small glass-rod fused to the outside (see enlarged cut at side) which serves to draw out the last drop when the contents are discharged. This tube *K* may be chosen of any desired size or volume, as its exact volume may be easily determined by measuring the contents flowing from it. Or, it may be made of a size to deliver a fixed volume of liquid at a given temperature.

The method of charging the apparatus is the following:

A reservoir containing the liquid, and standing at an elevated place, is connected with the orifice *d*. It will be seen, by following this tube, that there is a stop-cock at *A*, and that it communicates not only with the pipette tube *K*, but also with an upright tube K, ending in a small orifice within a cup-shaped receptacle *A*. It may be at once mentioned that the capacity of the pipette *K*, from the orifice *e* to the stop-cock *B*, is exactly the same as that of the tube *K*, from its upper orifice to a point precisely on a level with the upper edge of stop-cock *B*.

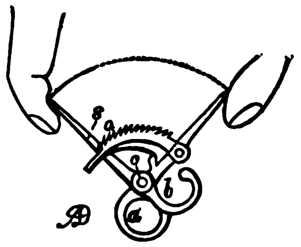


Dafert's burette.

The first thing to do is to fill the apparatus full of liquid. *B* being kept closed, *A* is opened so that liquid may fill the tube *K* until it overflows into the cup. *A* is then closed. A beaker is now held close under the orifice *e*, stop-cock *B* opened, and the liquid in *K* will thereupon fall and enter the tube *K*, partly passing out. The whole operation is repeated until the pipette *K* is completely filled.

The apparatus is now ready for constant use. It is only necessary to place a suitable vessel under the orifice *e*, and to open the stop-cock *B*, when the contents of the pipette will flow into the former. *B* is then closed, and *A* opened. This causes the upright tube *K* to be recharged. *A* is closed, and the contents of the pipette may now again be discharged as before, and so on. It has been found that by using this device a greater accuracy is attained than by actual measuring with graduated pipettes.

The apparatus will be patented, and will be made by C. Gerhardt, of Bonn.



## A NEW PINCH-COCK FOR RUBBER TUBING.

THE clamp or pinch-cock here shown is operated by two fingers grasping the ends or handles of the two hooks or rings *a* and *b*, which are joined together like shears, and which are pressed together until the tube which passes through the round openings *a* or *b* is sufficiently compressed. The toothed spring *o*, engaging a corresponding projection in the handle *s*, holds the clamp in position. It only requires a touch of the projecting part of the spring to release the pressure. (Germ. pat. 37,667.)

### Glycerin as an Aid in Drying.

IT has been found that if printing paper is dampened with a dilute solution of glycerin in water, and it be then printed upon, the ink upon it will dry very much more rapidly than when the glycerin is omitted.

THE

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## EDITORIAL.

A SCHEME has lately come to our notice for starting a "pharmaceutical company" among physicians, and advantage has been taken of the existence of a certain number of physicians in every community, who will indorse anything that will bring their names before the public, to give the scheme character. The circular which is issued as a means for promoting subscriptions to its stock contains such very remarkable statements that we think it worth while to reproduce some of them. The objects of the company are, in the first instance, stated to be:

"The manufacture of reliable chemical and pharmaceutical preparations, whose qualities for purity, full strength, and correct weight shall be *guaranteed by the supervision of an advisory board of physicians appointed to examine and analyze its products.*"

We have italicized a portion of the above statement for the purpose of drawing attention to its absurdity as contrasted with the names of physicians published as indorsers of the project, not one of whom would be competent to serve on such a committee or analyze a pharmaceutical preparation.

"To afford physicians an opportunity of sharing in the legitimate profits of the manufacture by becoming stockholders of the company. This opportunity will be given only to a selected list of physicians, who may subscribe for a limited number of shares each."

(Care has been taken to select physicians, whose names, when published, would help to advertise the scheme.)

"It is unnecessary to do more than mention the adulteration that exists in the manufacture of official and other pharmaceutical preparations, the injuries that result from the use of adulterated compounds, and the difficulties with which physicians have to contend in their efforts to obtain results reasonably to be expected from their prescriptions. For example, 2 grains of sulphate quinine pills manufactured by firms of supposed reliability have been found upon analysis to contain not more than 1½ grains of the alkaloid; and fluid extracts 25% below official requirements have been extensively sold. It has been claimed that competition among manufacturers has been the cause of the adulteration, and that this competition would prevent manufacture by the . . . company at a reasonable profit; but that this is not so may be seen from the limited list of official and other pharmaceutical preparations, of which the following is an approximate estimate of the sale and profit therefrom for the year 1886;

| | | | |
|---|---|---|---|
| 25,000,000 comp. carthartic pills, | estimated | profit, | 50%. |
| 25,000,000 quinine pills, | " | " | 50%. |
| 8,000.000 rhubarb " | " | " | 100%. |
| 8,000,000 iron " | " | " | 100%. |
| 1,000,000 lbs. fluid extracts, | " | " | 25%. |

| | DOZENS. | NET PRICE. | | ESTIMATED PROFIT. |
|---|---|---|---|---|
| Cod-liver Oil............. | 100,000 | $6.00 | per doz. | 100 to 150% |
| " Emulsion....... | 100,000 | 8.00 | " | 100 " 130% |
| Malt Extract............. | 60,000 | 5.00 | " | 100 " 120% |
| Beef, Iron, and Wine..... | 70,000 | 8.80 | " | 100 " 130% |
| Syrup of Hypophosphites. | 70,000 | 8.50 | " | 100 " 135% |

This is exclusive of manufacture by retail druggists."

The source from whence the above statistics are derived is not mentioned, but we think our readers will agree with us that it was probaby the fertile brain of some stockbroker.

"The manufacture of these articles seems to show a broad magin of profit, and Dun & Co., and Bradstreet & Co., Mercantile Credit Agents, have not reported in the last three years the failure of a single corporation manufacturing these or other pharmaceutical preparations."

We had no idea that manufacturing pharmaceuticals is so lucrative, and we are quite sure that many of our readers will share in our surprise.

"Whatever untoward effects competition may entail may be avoided by this company by its method of organization, and the results to be reasonably expected from the interest taken in it by consumers of its products.

"It is proposed to accept as members only physicians of known standing throughout the country, who from their own experience can themselves use and recommend to others its products."

In other words, the stockholders are also to serve as a sort of professional *claque*, and we shall by-and-by observe that these eminent men will take occasion to remark, in any contribution to medical literature, that such and such things, "made by the well-known . . . company were used with very satisfactory, indeed, with quite unusually good results," and that "it will be worth the trouble of those who have occasion to treat similar cases, to insist that the apothecary shall dispense, for such cases, the products of no other manufacturer." This, we will see, is likely to increase the dividend to be derived from his stock.

"An association of this character will tend to prevent the introduction and distribution of impure preparations, and to establish reasonable prices for such goods as may be included in its manufacture."

We all appreciate the truth of this, for it is well known that whenever a person becomes a stockholder in any concern, his chief concern lies in having the consumer's interests carefully looked after, and that the dividends he may personally derive from his stock is a matter of secondary importance.

"Manufacturers of impure preparations will be forced to adopt and maintain the standard of the United States Pharmacopœia, as the medical profession at large will prescribe only the best of medicines obtainable."

All of which is mere buncombe.

"The success of this plan as applied to other lines of manufacture needs no demonstration, and we are not without experience in its successful adaptation in the proposed direction. An eight months' experiment was made by our manager, the result of which was entirely satisfactory, although instituted upon the smallest possible basis and without the moral and pecuniary support which is now secured to this corporation. The physicians' patronage is the source of the manufacturers' profit, as through the physicians' indorsement alone can any official or other pharmaceutical preparation come into general use."

And we are sorry to be obliged to say that it is a very stupid fellow who can't get doctors enough to indorse the virtues of any nostrum, hobby, or scheme, providing he gives them an opportunity to see their names published.

"We propose that the physician as a practitioner shall reap the benefit of a purer manufacture; as a consumer shall have a voice in the manufacture of medicines which he constantly prescribes."

(No mention is made, however, of the mode by which his voice shall exert itself.)

"And as an investor shall receive a reasonable financial return for his investment."

The method of organization is somewhat similar to that pursued in mining ventures, viz., 600 shares at $50 each constitutes Class A. This is usually held by the promoters of the scheme, and costs them the preliminary expenses—chiefly desk-room in some office, and the publication of circulars. Those who *promote* such schemes usually term this "getting in on the bottom," or "on the floor."

Then comes Class B, composed of those who are *allowed* to come in and pay par value for their stock. In the present instance Class B seems to be expected to furnish the advertising also, but the value of the stock in Class B is only $20,000, distributed through many individuals, so that in any case the unknown but presumably very limited number of holders of Class A will be able to run the machine in any event. Altogether the scheme appears to be working very well in the sense that its stock has been taken by a considerable number of doctors whose social status makes their connection valuable; who have lucrative practices and money to invest, and who have neither time nor ability to look very closely into the management of a manufacturing business, the details of which they are entirely unfamiliar with.

The truth is, that the medical profession generally, and in cities especially, are far from being competent judges of the purity or general characteristics of the remedies employed by them. Their knowledge of medicines is largely theoretical, and they depend almost entirely upon books and journals for it, rarely, if ever, seeing the drug itself. A prescription for some substance, based upon what has been read in some journal or book, is written; the pharmacist to whom it goes incorporates the substance with others, and in nine cases out of ten the doctor never sees the product and could not give a critical opinion of its merits if he should see it. This is exactly the sort of a man who is ready to accept the statements of some shrewd fellow who will flatter his vanity and promise a good return for money invested, and unless the original cost is too great, he will never take the trouble to investigate the subject further than to look over the names of those who have been similarly *roped in.*

Such a scheme may be managed at the outset by good and honest men, and for a time be reasonably successful, but in the event of financial and business embarrassments the control of the corporation may pass into the hands of less scrupulous managers, and the corporate name and reputation acquired may be used to promote the sale of pharmaceutical products of a very inferior quality. The value of the indorsements by eminent physicians still remains as great, and can be used quite as successfully to advertise the degenerate goods as they were at the outset, and the harmful results can only be estimated by some one as gifted as the person who is authority for the statement that 25,000,000 pills of quinine and the same number of compound cathartics were manufactured in 1886, at a net profit of fifty per cent.

◆

**The Southern District Pharmaceutical Association** (South Dakota) will meet in Sioux Falls Sept. 6th, 1887. The officers are D. S. White, of Flandreau; U. S. Brattch, of Parker, Secretary, and L. T. Dunning, of Sioux Falls, Treasurer and Local Secretary.

**The Fifteenth** Annual Meeting of the American Public Health Association will be held at Memphis, Tenn., on the 8th to 11th of November next.

**Kentucky Pharmaceutical Association.**—The tenth annual convention will occur on the 18th, 19th, and 20th of May at Louisville. Edward Goebel, the Local Secretary, reminds those who contemplate an exhibition of products that the meeting of the State Medical Association at Paducah, on the 17th of June, affords another opportunity for displaying wares which will enable them to have additional publicity at a slightly increased expense.

**Chicago College of Pharmacy.**—At the annual meeting of Chicago College of Pharmacy, held March 8th, 1887, the following officers were elected. President, George Buck; Vice-President, W. K. Forsyth; Auditor, W. A. Puchner; Treasurer, Judson S. Jacobus; Secretary, D. H. Galloway.

Trustees.—Albert E. Ebert, Fred. M. Schmidt, Boch Uhlendorf, Andrew Scherer, J. C. Borchardt, August Jacobson, F. M. Goodman, Herbert T. Clark, Henry Biroth, and Arthur A. Winter.

The regular summer session opened March 14th, 1887.

**Massachusetts Pharmaceutical Association.**—The sixth annual meeting will be held in Holyoke, June 7th and 8th, 1887. The local committee have engaged halls in the Windsor Hotel for the meetings devoted to the exhibits; space may be had in the exhibition without charge. Applications for space will be filed in order of receipt. Material for tables and men to place them will be furnished at a nominal expense.

CHAS. E. BARDWELL, *Local Secretary.*

HOLYOKE, MASS., April 13th, 1887.

**Pennsylvania Pharmaceutical Association.**—The tenth annual meeting of the association will be held on June 14th next in the Philadelphia College of Pharmacy. The members of the college have very kindly offered their rooms for the meeting and use of the association. They will also, on Wednesday evening, June 15th, give a reception to the members and ladies at the college.

An excursion on the Delaware River is contemplated for Thursday, June 16th. A large attendance and a delightful meeting are looked for.

J. A. MILLER, *Secretary,*

HARRISBURG, April 18th, 1887.

**The Alumni of the St. Louis College of Pharmacy** have a very wide-awake organization, of which W. C. Bolen is President; W. H. Gallenkamp and W. H. Motz, Vice-Presidents; H. M. Whelpley, Recording Secretary; F. F. Witting, Corresponding Secretary; C. Geitner, Treasurer, and A. Weber, Registrar.

**Fort Worth,** Texas, has a recently-organized Association of Druggists, of which E. D. Oesch is president; E. M. Wells, vice-president; J. G. Browning, secretary, and N. E. Grammer, treasurer. A committee was chosen to provide for the entertainment of the State Association on the 10th inst.

**Alumni of the Cincinnati College of Pharmacy.**—We are indebted to Mr. Wetterstroem for the following particulars respecting the annual meeting of this association which occurred on the 30th of March: The initiation fee was reduced from $5.00 to $2.00 and an annual tax of $1.00 imposed on each member. The meetings are to be held quarterly. The following officers and committees were chosen: President, A. W. Bain; Vice-President, E. W. Stahlbuth; Recording Secretary, Herman Serodine; Corresponding Secretary, Albert Wetterstroem; Treasurer, Emil Heun; Executive Board, C. P. Rendigo, C. M. Greve. C. W. Smedley, A. Meininger, Louis Sauer, C. Kaefer; Delegates to A. P. A., C. M. Greve, Julius Eichberg, A. Wetterstroem, E. W. Stahlhuth, Otto Plath; Alternates, C. A. Fieber, C. Ashbrook, F. Kallmayer, B. H. Overbeck, A. C. Heinemann; Committee on Social Entertainments, H. Serodine, C. M. Greve, Julius Eichberg; Committee on Queries, Louis Sauer, A. Meininger, F. Kinzbach; Committee on Publication, E. Heun, C. Fennel, L. Klager, E. Pohlmeier, J. H. Feemster. The latter committee are to report upon the practicability of a quarterly journal under the auspices of the society.

**Philadelphia College of Pharmacy.**—The annual commencement was held March 18th and the degree of Graduate in Pharmacy was awarded to 148 students. The degree of Master in Pharmacy was conferred upon Alfred B. Taylor and William Webb, of Philadelphia; Charles A. Heinitsh, of Lancaster, Penn.; C. Lewis Diehl, of Louisville, Ky.; and William T. Wenzell, of San Francisco. A number of prizes were given, O. V. Cassady, of Alliance, Ohio, and C. S. Bondurant, of St. Louis, receiving each the gold medal of the "Proctor Prize." A. L. Beck, of Warren, Pa., and E. G. Siebert, of Chambersburg, Pa., dividing the "Henry C. Lea Prize" of $100. The latter received also Prof. Maisch's "Materia Medica Prize" of a microscope. E. Breneiser, of Reading, Pa., received the gold medal of the Remington "Pharmacy Prize." A. L. Beck received the Stadtler "Chemistry Prize" (an analytical balance) and the "Maris Prize" (a prescription balance). The Trimble "Analytical Prize," of $25, went to E. S. Beshore, of Bethel, Pa. E. R. Stitt, of North Carolina, received the "John M. Maisch Prize" of $20, and J. G. Patton, of Youngstown, Ohio, the "Borre Operative Prize."

**Alumni Association of the Philadelphia College of Pharmacy.**—At the 23d annual meeting, held March 17th, the President, Mr. Wallace Proctor, delivered an address. The Secretary reported an increase by 132 new members, 14 deaths, and a total membership of 1,224. The Treasurer reported a balance of $143.32. David W. Ross was elected President, C. B. Lowe and B. F. Scholl, Vice-Presidents; W. E. Krensen, Secretary; W. N. Stern, Corresp. Sec'y, and E. C. Jones, Treasurer. W. Proctor, J. W. England, and H. Trimble were elected to the Executive Board. Thomas D. McElhenie, of Brooklyn, delivered the oration; and addresses for the class of '87 were delivered by W. A. Smith, of Philadelphia, E. J. Hardfield, of Dodge City, Kansas, and W. C. Helper, of Reading, Pa. O. V. Cassady, of Alliance, Ohio, received the gold medal "Alumni Prize." The "Quiz Master Prize"—a silver medal—went to E. S. Beshore, of Bethel, Pa. The seven prize certificates to members of the graduating class attaining the highest averages were given as follows:

Materia Medica—William A. Partee, of Nashville, Tenn.

Pharmacy—Addison I. Beck, Sharon, Pa.

Chemistry—C. A. Bondurant, of St. Louis, Mo.

General Pharmacy—Edgar Breneiser, of Reading, Pa.

Operative Pharmacy—John G. Patton, Youngstown, Ohio.

Analytical Chemistry—Frank W. Droelle, Detroit, Mich.

Specimens—Bennett I. Taylor, of Zanesville, Ohio, who also received a prize for the best collection of indigenous plants; Paul Leuschner, of Detroit, Mich., was awarded a prize certificate, also a testimonial certificate for the Junior receiving the highest general average of the Class to William Crutcher, of Richmond, Ky. The programme was interspersed with college songs by a glee club of senior students organized during the past winter.

A RECENT letter from Mr. J. A. Miller, secretary of Pennsylvania Pharmaceutical Association, says that the proposed Pharmacy Act had passed the lower house of the Legislature by a large majority, and that its friends are very hopeful of success.

### The Effect of "Shaving" upon Cultivated Cinchona.

For some time past, a new method of improving the yield of alkaloids in cultivated cinchonas has been employed in the East Indian plantations. This is to some extent taking the place of the "mossing" process introduced by McIvor. The latter consisted in the removal of a number of narrow longitudinal strips of the bark, the intermediate strips being left intact, while the denuded portions are covered with moss, under which the bark will become renewed. The "renewed" bark is found to be much richer in alkaloids than the old. When it has grown sufficiently, the untouched portions are stripped off, and this is done alternately, as long as the tree will permit.

Regarding the new process of shaving, the following extracts from the official report of Mr. Lawson, Director of the Government Cinchona plantations, Nilgiris, for 1885–1886, will give some interesting information:

*Renewal by Shaving.*—Shaving cinchona trees has been for some years a method of harvesting bark which in some districts works better than that of stripping and mossing. The cellular and richer portion of the bark is removed in this way, and the fibrous portion is left. The bark thus treated thickens again, and the shavings taken from it are found to be richer still in alkaloids. The analysis of some succirubra shavings, taken from trees grown in the Ouchterbourg Valley, will show to what an extent trees may be improved by this method. The renewals had been taken after intervals of twelve months; the experiment, therefore, has lasted over three years.

| | Quinine. | Other Alkaloids. | Total. |
|---|---|---|---|
| Original bark | 1.35 | 5.87 | 7.22 |
| Once renewed | 2.46 | 4.22 | 6.68 |
| Twiće renewed | 3.60 | 3.99 | 7.59 |
| Thrice renewed | 3.87 | 3.71 | 7.58 |

The increase in quinine during the first and second year by renewing is most satisfactory; the increase in the third year is not so prominent, but the bark is good, and indicates that shaving for at least four years might be permitted. The trees upon which these experiments were made were six years old when the original bark was taken. If at this comparatively early age they are not injured by shaving, and renew their bark so well, it is not desirable to wait for the trees to become more matured.

When trees are allowed to grow until they are twelve years of age and then shaved, the renewal sets in more slowly and the resulting bark does not compare more favorably with the original bark than if the trees operated upon had been half that age. This may be instanced by quoting some more analyses. Last December some interesting samples were sent by the manager of the Glenrock Company, South-East Wynaad, consisting of some natural and renewed shavings of succirubra taken from trees of six and twelve years of age.

The following is the analysis of four of the samples:

| | Sulphate Quinine. | Total. |
|---|---|---|
| Red bark, six years natural | 1.34 | 5.00 |
| " " renewed, two years | 2.54 | 6.95 |
| " " twelve years | 2.42 | 7.41 |
| " " renewed, two years | 2.71 | 7.01 |

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I have had very few opportunities of observing the effect of shaving on pure Ledger barks, containing little, if any, alkaloid besides quinine, but it appears that hybrid Ledgers of the broad-leaved variety holding cinchonine are capable of great improvement by the shaving process, as the following renewals of eleven months will show, compared with the natural bark of six-year-old trees:

| | Sulphate Quinine. | Total. |
|---|---|---|
| Ledger bark, narrow leaf, natural, 1885 | 4.09 | 5.97 |
| " " " " renewed, 1886 | 6.62 | 8.49 |
| " " broad leaf, natural, 1885 | 2.90 | 6.61 |
| " " " " renewed, 1886 | 5.19 | 8.51 |

The sulphate of quinine in the narrow-leaved Ledger had increased sixty-two per cent and in the broad-leaved Ledger seventy-nine per cent. The greater increase in the latter variety is due to the presence of other alkaloids, which appear to develop quinine in the growth of the tree.

Shaving old trees has certainly not had a beneficial effect, from some trials made on government estates. Both red and crown trees from sixteen to twenty-one years of age cannot well bear the removal of the bark in this way, and the renewal takes place slowly and is impoverished instead of being enriched. A crown bark was taken from Dodabetta, aged twenty, and shaved. The shavings gave 3.66 sulphate of quinine; after six months, some renewed shavings were taken and found to yield only 1.85 per cent sulphate of quinine, the bark then was commencing to decay, and the tree has since died.

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**Sham Glycerin.**—A correspondent of the *Canadian Pharmaceutical Journal* says that Prof. Lajorex, of Reims, has analyzed a low-priced article sold as "Glycerine argenté," having a s.g. of 1.26, neutral, slightly yellow and apparently of excellent quality, although to the taste it is bitter-sweet and quite unlike glycerin. It was found to consist of a saturated solution of Epsom salt, with about 160 grammes of glucose per liter. [? Ed. Am. Drug.]

### A Ton of Coal.

In a paper read before the Royal Institution of Great Britain, Prof. H. E. Roscoe gave the following interesting statistics of the products obtained from one ton of Lancashire coal. Distilled in the gas retort, the coal yields:

(1.) 10,000 cu. ft. of illuminating gas.

(2.) 20 to 25 gallons of ammoniacal liquor, 5° Tw., equivalent to 30 lbs. ammonium sulphate.

(3.) 12 gallons or 139.2 lbs. gas tar, sp. gr. 1.16.

(4.) 13 hundredweight of coke.

Form the twelve gallons of gas tar may be obtained:

(1.) 1.1 lbs. Benzene.
(2.) 0.9 lb. Toluene.
(3.) 1.5 lb. Phenol.
(4.) 2.44 lbs. Light Naphtha.
(5.) 2.4 lbs. Heavy Naphtha.
(6.) 63 lbs. Naphthalene.
(7.) 17 lbs. Creasote.
(8.) 14 lbs. Heavy Oil.
(9.) 0.46 lbs. Anthracene.
(10.) 69.6 lbs. Pitch.

From the benzene may be obtained 1.23 methyl violet, sufficient to dye 1.009 yds. of flannel a full violet. Otherwise the benzene and toluene together may be made to yield 0.623 lbs. magenta, sufficient to dye 500 yds. of flannel a full shade. The phenol will yield 1.2 lbs. aurin, which will dye 120 yds. of flannel a full orange. The naphthalene may yield either 7.11 lbs. vermilline scarlet sufficient to dye 2,560 yds. of flannel a full scarlet, or 9.5 lbs. of naphthol yellow, sufficient to dye 3,800 yds. of flannel a full yellow. From the anthracene may be obtained 2.25 lbs. of alizarin, 20 per cent, sufficient to dye 255 yds. of cotton a full turkey red.

The following, according to Prof. Roscoe, are the principal dyes derived from gas tar:

1. From benzene, the aniline series; (a). *Yellows*, orange-yellow or acid yellow, metanil yellow, auramine; (b). *Brown*, brown, Y.; (c). *Orange*, diphenylamine or Blackley orange, chrysoidine, Y, orange I,* orange II,* orange III (Helianthine), orange IV.; (d). *Red*, safranin; (e). *Blues*, diphenylamine blue, methylene blue, indulin (Campbelline); (f). *Violets*, methyl violet, 6 B, methyl violet R.; (g). *Green*, malachite green, brilliant green, acid green.

2. From Toluene. (a). *Brown*, Bismarck brown, R.; (b). *Orange*, chrysoidine, R.; (c). *Reds*, Magenta, R., Magenta, B.; (d). *Blues*, Blackley blue, R., Blackley blue I., alkali blue, R., alkali blue, 6 B.

3. From Phenol. (a). *Yellow*, picric acid; (b). *Orange*, aurin; (c). *Red*, eosin, safrosin, cyanosine, rose bengal, phloxin, erythrosin.

4. From Naphthalene. (a). *Yellow*, dinitrophenol (Manchester yellow), naphthol yellow; (b). *Red*, Bordeaux, vermilline scarlet, R., vermilline scarlet, R. R. R., vermilline scarlet, B.B.B., rocellin,* new red, Biebrich scarlet, crocein scarlet; (c). *Blue*, Victoria blue 1,* and Victoria blue 5.*

5. From Anthracene. (a). *Yellow*, alizarin, anthrapurpurin: (b). *Brown*, flavopurpurin.

6. From Xylene and Naphthaline, xylidene scarlet; from cumene and naphthalene, cumidine scarlet. —*Pharm. Era.*

### Detection of Cotton-seed Oil in Olive Oil.

Prof. E. Becchi, chemist of the Italian Customs Department, some years ago worked out a test for olive oil which was first published in this Journal (New Rem., 1883, p. 314), depending on the action of nitrate of silver in contact with the oil. This test has been somewhat modified from time to time. At present it is used in the following manner, and it is held to be absolutely reliable by the author. Two test solutions are required: the first prepared by dissolving one gramme silver nitrate in 200 C.c. alcohol (98 per cent), and adding 40 C.c. ether. The filtered liquid should exhibit a slightly acid reaction. The second solution consists of pure amyl alcohol containing 15 per cent rape oil. The test is performed by placing 10 C.c. of the suspected oil in a small flask, and adding 1 C.c. of the silver nitrate solution and 12 C.c. of the mixture of amyl alcohol and rape oil. The contents of the flask are then shaken up well, and warmed for a quarter to half an hour in a water-bath. If the liquid becomes dark in color, cotton-seed oil is present. To check the result, the test may be repeated, using a mixture of 8 C.c. pure olive oil and 2 C.c. cotton-seed oil.

### Improved Battery Cell.

Mr. H. V. Warren recommends the replacement of the customary solution for a bichromate battery with a concentrated solution of perchloride of iron containing a little free acid, and a layer of bromine at the bottom of the bottle or jar. The zinc reduces the ferric salt to a ferrous condition, and this is in turn reoxydized by the bromine, so that a fairly constant battery of much greater power than the ordinary bichromate battery is obtained. Such cells are said to give a current suitable for lighting, electrolysis, or other purposes, which do not diminish to any material extent for fully two and a half hours, and even then a brisk current of chlorine, or the addition of a little hypochlorite of sodium or calcium (bleaching powder) restores them almost to their original state.—*Brit. and Col. Drugg.*

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* Into these Naphthalene also enters.

### On the Relationship of Berberine to the Opium Alkaloids.

In our last March number (page 50) we gave an account of the results of an investigation by Freund and Will, on the nature of hydrastine, in which the close relationship between this alkaloid and some of the opium alkaloids, particularly narcotine, is demonstrated.

Entirely independently of these investigators, Prof. Ernst Schmidt, of Jena (*Arch. d. Pharm.*, 1887, Feb.), has carried on a study of *berberine*, which alkaloid is closely allied to hydrastine. The results thus far obtained are quite remarkable, and still more interesting ones are promised to be published in a short time.

According to Schmidt, it appears that no previous experimenter has ever had any pure berberine under his hands. He found almost insurmountable difficulties in the way of getting this alkaloid in a definite, crystalline condition. But he announces that his recent efforts have been more successful. Among other interesting matters, he reports having obtained a crystalline compound consisting of one molecule each of *berberine* and *chloroform*, which remained undecomposed when dried at 212° F.

On oxidizing berberine with permanganate of potassium in alkaline solution, there is obtained, as chief product, an acid which has been identified by Prof. Schmidt and Mr. Schilbach as hemipinic acid, previously obtained by the similar oxidation of narcotine. In fact, an exhaustive examination of hemipinic acid prepared from both alkaloids has conclusively shown that they are absolutely alike. This fact, therefore, proves beyond a doubt that there is a very close relationship between the alkaloids of opium and perhaps of all Papaveraceæ with berberine and its allies.

One point, however, requires clearing up, before further conclusions can be based on this fact. It is necessary to understand the nature of berberine itself. If no absolutely pure berberine has so far been used as a starting point for this chemical transmutation, it is necessary to show whether the pure alkaloid, when obtained, will undergo the same change, or whether it is not accompanied by some substance which has a share in the reaction. In some respects, berberine acts like a very obstinate organic *salt*, rather than as an alkaloid.

### The Chemistry of Tyrotoxicon.

Prof. V. C. Vaughan, of Ann Arbor, who some time since published his discovery of the poisonous substance which has given rise to serious illness in persons who have eaten certain articles of food—such as ice-cream, custards, cheese, etc.—has pursued the investigation of this poison, and in *Medical News* of April 2d states that Mr. F. G. Novie and he have about satisfied themselves that *tyrotoxicon* (as he called this poison) and *diazobenzol* are identical in both chemical and toxical effects. Diazobenzol is stated to be a transition product of putrefaction, and itself undergoes rapid decomposition. The cause of this particular form of decomposition appears to be a germ or micro-organism which is most readily developed in a limited supply or entire absence of air.

### Detection of Oil of Sesame in Olive Oil.

Schaedler points out that the test for the presence of oil of sesame by means of hydrochloric acid and sugar has lately been brought into undeserved discredit, through the ignorance of those who looked for the change of color in the oil, instead of in the acid.

When olive oil is suspected to be adulterated with oil of sesame, proceed as follows;

Mix 1 C.c. of the oil with 1 C.c. of pure hydrochloric acid of spec. gr. 1.125 and 1 Gm. of cane sugar, and agitate briskly. Had it been pure oil of sesame, the acid layer would assume already after fifteen minutes a rose-red color which would become violet after twenty-five minutes, and in the course of the next five hours would become as dark as a solution of iodine in bisulphide of carbon. Any other oil but oil of sesame produces a change of color (but not rose-red or violet) only after three-quarters to one hour. Any admixture of oil of sesame will be indicated by the rose-red or violet tint the acid acquires during the first twenty-five minutes.

As small a quantity as one-quarter per cent is said to be still recognizable.—After *Rep. f. anal. Chem.*

### Powdered Ergot.

Holdermann recommends to improve the keeping qualities of powdered ergot by sharply drying it for some time after it has been exhausted by ether. [This method of extraction by ether is prescribed by the Germ. Pharm.] He found that this additional drying causes it to lose several additional per cents of water. The proposition is strongly indorsed by the *Pharm. Zeitung.*

On our part, we will readily grant that the keeping qualities of the ergot are thereby improved, but whether the therapeutic properties of the ergot are not seriously injured by heat is another question. In this country, where so much experience has been collected about ergot and its preparations, it is regarded as detrimental to its medicinal effects to apply heat to it.

### Fatty Matters in Filtering Paper.

P. Vieth has recently drawn attention to a fact which has heretofore been overlooked, and which may be the cause of errors in quantitative determinations. He found that many, even of the best filtering papers contained substances which are soluble in ether or other solvents of fats. From certain papers he obtained an amount of ethereal extract which amounted to 0.314, 0.295, 0.231, and 0.161 per cent of the weight of the paper. This amount of fatty matter (or whatever it may be) would therefore increase the true amount of extractive obtained from a substance which is extracted by the solvent upon the filter.—After *Chem. Centralbl.*

It follows that it is not enough to exhaust the filters completely by acids and water, but it is also necessary to exhaust them with ether (or other similar solvent) if it is to be subsequently washed therewith.

### The Adulteration of Oils.

From a paper on this subject printed in the *Chem. News* (March 25th), we take the following abstract.

The author having lately seen a sensational article going the rounds of the press in which it was stated that a large proportion of American lard is adulterated with cotton-seed oil, he has decided to publish a new method of testing oils by means of a reagent.

He vindicates the character of the American lard (or lard-oil) by stating that he has examined it and found it to be certainly not adulterated with cotton-seed oil, if at all.

According to the author, all oils that have a tendency to thicken are acted upon by chloride of sulphur, and it is by means of this substance, when diluted with bisulphide of carbon or petroleum ether, that one class of oils may be separated from the other.

Sesame oil, which is more easily thickened, or as the author expresses it, more readily "vulcanizable," than cotton-seed oil, is more easily detected by chloride of sulphur than the latter. Oil of sesame is sometimes reported to be unobtainable in the market. This may have some connection with the practice of adultering olive oil.

When oils are acted upon by chloride of sulphur, they are converted into solid, easily pulverizable masses, from which the unconverted oil may be removed by bisulphide of carbon. On evaporating this solvent, the amount of unaltered oil is obtained.

Castor oil, which is not regarded as a drying oil, is violently affected by chloride of sulphur. In such cases, the reagent should be more largely diluted with bisulphide of carbon.

The practical application of the reagent to the detection of adulterations in oils will be reported in a subsequent paper by the author.

Our object in announcing this has been, to draw attention to the new reagent proposed by the author.

### Volumetric Determination of Alkaloidal Salts.

Professor Plugge (*Arch. d. Pharm.*) points out that litmus and phenolphtalein in combination with volumetric solutions of alkalies, may be used to determine the quantity of acid combined with alkaloids, and in some cases the quantity of the alkaloid itself.

In the salts of the weak opium alkaloids, viz., narcotine, papaverine, and narceine, the acid may be determined volumetrically, with litmus or phenolphtalein, as if no alkaloid were present at all. The end-reaction is very sharp.

In the salts of all alkaloids, except those of the volatile bases coniine and nicotine, and under certain circumstances, those of brucine, morphine, and thebaine, the amount of acid may likewise be determined volumetrically, phenolphtalein being used as indicator.

In the solution of salts of alkaloids (with exception of those of the weaker opium bases), which contain *free* acid, the latter may be determined volumetrically with litmus as indicator, and the combined acid afterwards with phenolphtalein as indicator. The difference between these two determinations shows the amount of acid directly in combination with the alkaloid, and hence, the quantity of the alkaloid itself, if this is known to be pure or free from others.

* * *

**How to Cut a Bottle.**—A correspondent of the *Chem. and Drugg.*, in describing how to make a percolator, mentions the following method of cutting a bottle:

"I was first shown how to do it by an ingenious mechanic, and have since seen the same published in Spons' 'Workshop Receipts.' Put the bottle on a level foundation and fill up with oil (I use linseed oil, being able to use it in paint-making afterwards) as far as you wish the line of separation to be. Next get a rod of iron as large as possible, but small enough to go into the mouth of the bottle. Make the iron almost white hot and dip it into the oil. In a very short time a crack will be heard when the iron can be taken out, and the bottle will be found as neatly cut as if with a diamond. Should the bottle be very thick, and the crack not heard in a minute or so, a dash of cold water outside will settle the business."

## QUERIES & ANSWERS.

*Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer, for the information of the editor, but not for publication.*

No. 1,913.—**Iodoform Pills** (M. E.).

There is no difficulty in making pills containing iodoform, any of the ordinary pill excipients fully answering the purpose, as they do not affect the chemical constitution of the substance. The only difficulty about them is the disguising of the odor. This may be accomplished, however, by combining with the iodoform some volatile oil, such as peppermint, wintergreen, cloves, etc., or a little cumarin (about 1 grain for every 30 of iodoform); or perhaps better still, by using finely-ground coffee as a diluent of the iodoform. This has been repeatedly recommended for this purpose, quite recently also by Mr. Wm. Duncan at a meeting of the Edinburgh Chemists' Assistants' Association.

No. 1,914.—**German Patent Gum Arabic** (Several inquirers).

This article has been largely advertised, and at the present time, when genuine gum arabic is threatening to disappear from the market, it will undoubtedly have a good sale wherever it can be used. But *it is inadmissible for medical or prescription purposes*, as will be seen from a description of its mode of preparation, which is given as follows:

Twenty parts of powdered sugar are boiled with 7 parts of fresh milk, and this is then mixed with 50 parts of solution of silicate of soda containing 36% of the salt. The mixture is cooled to 122° F., and poured into tin boxes, where granular masses will gradually separate out, which look very much like pieces of gum arabic. This substance may be used as a size for woven fabrics, and also as a base for mucilage, but it is altogether unsuitable for medical use. As the price of genuine gum arabic is constantly advancing, it will be well to be on the lookout for attempts that may be made to adulterate the gum or its powder with some of the artificial product.

Genuine gum arabic leaves, on combustion, not more than 4 per cent of ash, consisting of the carbonates of calcium, magnesium, and potassium. The readiest method of detecting adulteration with the artificial gum will be the determination of the ash quantitatively as well as qualitatively. Another method is to test with Fehling's solution. Pure gum arabic does not reduce it; at least, though there may be a bluish flocculent precipitate, there is never any separation of red cuprous oxide within a few hours after the test-tube is set aside. The artificial gum, however, reduces Fehling's solution copiously and instantly.

No. 1,915.—**Manufacture of Albumen on the Large Scale** (J. B. T.).

Egg-albumen can be prepared for the market, on a large scale, only in such countries where eggs are raised in larger quantities than are consumed as food, or where it is found cheaper to work them up into marketable products than to sell them as eggs. This condition of things does not exist in this country so far as we are aware. Probably all the egg-albumen of the market is imported, and most of it comes from Eastern Europe.

The only cheap source of albumen that is readily accessible anywhere is blood. Blood-albumen generally answers the same purposes as the other, but is usually not as nice and clean as it might be. It may be prepared best by the new process of Thorsten Nordenfelt (this is, however, patented).

The blood is first deprived of fibrin by whipping or brisk stirring, and is then filtered. If handsome and almost colorless albumen is desired, every 100 kilos of blood are mixed with 100 to 1,000 grammes of sugar, previously dissolved in a little of the blood, and with a like quantity of a pure volatile oil [we presume, one which does not injure the final product by objectionable odor]. The object of the sugar, which is in so small a quantity as not to affect the commercial purity of the product, is to facilitate the separation of the serum and to prevent its decomposition. [We would try and prevent the latter by saturating the blood and the subsequent liquids derived from it with chloroform, as this will effectually protect such organic liquids for a long time.] The volatile oil makes the serum clear and almost colorless. It is dissipated during the final drying.

Thus prepared, the blood is run into a rapidly revolving centrifugal machine, constructed on the plan of those now used for making butter. The heavy blood-corpuscles collect at the outside, the lighter serum near the inside. Both are drawn off through separate channels. If the serum is not perfectly pure, it is mixed with more volatile oil, and stirred for about 15 minutes. Finally, the serum is concentrated *in vacuo*, and the residual mass dried in flat vessels under a good draft, at a temperature never exceeding 122° F.

No. 1,916.—**Standard Works on Manufacture of Starch, Glucose, etc.** (B. B.).

The most complete work on this subject which we are acquainted with, is vol. V. of the Encyclopedia of Agricultural Manufactures, edited by Dr. K. Birnbaum, and published by Vieweg, in Braunschweig. The general title of the cyclopedia is: *Lehrbuch der rationellen Praxis (Encyklopädie) der landwirthschaftlichen Gewerbe.* Vol. V. of this has the title: "Die Stärkefabrikation in Verbindung mit der Dextrin- und Traubenzuckerfabrikation." Von L. v. Wagner, 2d edit., 14 marks.

This encyclopedia is in fourteen volumes, profusely illustrated, and treats of brewing, distilling, wine making, the manufacture of sugar, starch, etc., vinegar, wood-vinegar, acetic acid, bread, etc., etc.

No. 1,917.—**Parchment-pointed Filters** (J. W. S.).

In our volume for 1885, p. 108, we gave an account of a method proposed by E. E. H. Francis, for toughening filter paper so as to render it able to resist pressure. All that is necessary is to dip the filter to the desired depth into nitric acid of the spec. grav. 1.420, and then to wash with water until every trace of acid is removed. If the filter is to be used for rapid filtration with the filter pump, all that is necessary is to parchmentize the point. The effect of the treatment with acid of the above-mentioned strength is not to increase the weight of the paper, as is the case when pyroxylin is formed; but the weight is diminished, and some of the inorganic constituents are removed, so that the ash is diminished. The well-known firm of Schleicher & Schüll, of Düren, Germany, have put filters with parchmentized point on the market, which may be obtained through dealers in chemical apparatus.

No. 1,918.—**Silicate of Soda** (Medicus).

Considerable trouble has lately been experienced by some of our medical friends in obtaining silicate of sodium suitable for making silicate splints. The viscid, sticky form in which this is usually met with in the market is very unsuitable for the purpose. On attempting to make it more liquid by the addition of water, great difficulty is met with, since it will not mix with water readily, being like a dough or a mass of stringy glue which unites but slowly with the water. Besides, the very act of solution causes a portion of the salt to decompose, granular silica being separated.

The best kind of silicate of sodium for surgical purposes is a solution, directly prepared by the manufacturers, having a specific gravity of about 1.360. This is manufactured, for instance, by L. Feuchtwanger & Co., 191 Fulton street, New York. It may be obtained through the wholesale drug houses.

No. 1,919.—**Boehringer's Quinine Test** ("Alkaloid," Boston).

This a test recently recommended by C. F. Boehringer & Sons, of Mannheim, for testing the purity of commercial sulphate of quinine. It is based upon the results obtained by previous investigators, chiefly Shimoyama, Schaefer, and Vulpius, regarding which we have reported elsewhere already. It is claimed for this test that it will show the presence even of the smallest quantity of cinchonine and quinidine, and also any amount of cinchonidine over 1 per cent. The test is as follows:

Dissolve 2 Gm. of the crystallized sulphate of quinine in 60 C.c. of distilled water in a tared flask at a boiling temperature. Then add 0.5 Gm. of neutral, crystallized oxalate of potassium dissolved in 5 C.c. of distilled water. Add enough water to make the contents of the flask weigh 67.5 Gm.

Next place the flask for half an hour into a water-bath at 20° C. (68° F.) [having previously cooled the flask to this temperature], then filter and add to 10 C.c. of the filtrate one drop of officinal solution of soda (Germ. Pharm., containing 10% caustic soda).

If a turbidity or a precipitate makes its appearance, the salt contains 1 per cent or more of cinchonidine.

The oxalate of potassium suitable for this test is prepared by neutralizing pure oxalic acid in aqueous solution with pure potassa, so that the liquid has only a faintly alkaline reaction. The solution is concentrated, allowed to crystallize, and the crystals dried with the aid of heat.

No. 1,920.—**Phenol-Mercury** (M. D.).

We have had no experience with this, and only know that it was recommended some time ago as a prompt remedy in syphilis. According to an article in the *Pharm. Zeit.* (Jan. 15th), it is prepared in the following manner:

Prepare aqueous solutions of 132 parts of phenol-potassium and 271 parts of mercuric chloride, and mix them. Wash the orange-red precipitate until the addition of iodide of potassium no longer produces a reddish color (due to the formation of mercuric iodide).

The requisite phenol-potassium is prepared by mixing 94 parts of crystallized carbolic acid with 56 parts of fused caustic potassa, evaporating to dryness, and freeing the crystalline needles, which form on cooling, from adhering moisture by drying upon porous plates. [If the fused caustic potassa of the market were perfectly pure, 56 parts would correspond to its formula KOH. But as it is often quite impure, due allowance must be made for this, or it must be specially purified.—ED. AM. DRUGG.] The resulting mercury compound is stated to have the composition $C_6H_5.OHg.OH$, but this requires confirmation. It is administered in pills, in doses of 0.02 Gm. (about ⅓ grain).

**No. 1,921.—Bromide of Magnesium** (M. D.).

It was announced last year (*Am. Journ. Pharm.*, Nov., and elsewhere) that bromide of magnesium was used in the Philadelphia Hospital, in place of the bromide of the alkalies, in the treatment of nervous diseases. This salt is prepared extemporaneously by dissolving magnesium carbonate to saturation in dilute hydrobromic acid, so that a tablespoonful of the solution contains 8 grains of bromide of magnesium. The liquid is clear, has a slightly yellow color, no odor, the spec. gr. 1.122, and is not precipitated by an equal volume of alcohol.

**No. 1,922.—Permanent Solution of Starch as a Reagent.**

Gelatinized starch, such as is directed to be prepared from 1 part of starch and 200 parts of water in the appendix of the U. S. Ph., cannot be kept long, and it is usually necessary, when the reagent is required, to prepare it freshly. Of course, it must be used *cold*. There are, however, several methods by which a permanent solution of starch may be prepared. One of the best is that which combines the preservative quality of glycerin with that of common salt (Topf's method; *Zeitsch. Anal. Chem.*, 1887, 138). It is as follows:

Heat 6 parts of starch for half an hour with 100 parts of concentrated glycerin to 190° C. (374° F.); then dilute it with twice its volume of a 10 to 20 per cent solution of chloride of sodium, and filter. It will remain permanent.

**No. 1,923.—Softening Fish-Bones** (S. W. T.).

The correspondent wishes to know the process employed for softening the bones of sardines and other fish previous to canning, so that they can be eaten.

We have been informed that this is done by heat under pressure, but as we have no knowledge on the matter ourselves, we would like to refer this query to our readers for answer. Certain brands of sardines have had the principal bones removed by a skilful operator before they are packed, and our correspondent may have supposed that it was accomplished by some chemical process. It is reasonable to infer that any process which would soften the bony and cartilaginous structures of fish would also destroy the characteristic properties of the flesh.

**No. 1,924.—Tincture of Liquorice Root** ("Extracts").

This inquirer wants to know how he can make tincture of liquorice root, of which he has to make a considerable number of gallons every week, so that it will not become cloudy when mixed with water; or how he may render it clear after it has become cloudy.

The cause of the cloudiness is the sweet principle of the liquorice root, namely glycyrrhizin. This is present in the root in combination with calcium and ammonium. As long as it is completely combined with a base, it is soluble both in alcohol and in water, but the ammonium compound particularly has a tendency to decomposition, owing to a gradual loss of ammonia. Now *free* glycyrrhizin is soluble in alcohol (which is, of course, present in the tincture originally made), and the stronger the alcohol is the more soluble it is; but it is only very little soluble in water. Hence on diluting the tincture containing *free* glycyrrhizin with water, this principle is partly precipitated in form of a turbidity which slowly settles to the bottom. It would not do to filter this out, because it is the most important constituent of the liquorice. It is, on the contrary, necessary to bring it into solution again, and this is readily accomplished by using just enough ammonia to prevent the liquid from distinctly smelling of it. What remains undissolved then may be rejected. It is even advisable to add about 3 per cent of water of ammonia to the diluted alcohol with which the liquorice root is to be exhausted. No heat should be used, but cold percolation. The root should not be "crushed," but in powder. Some add to the menstruum a small proportion of glycerin; but it is not necessary in our experience.

**No. 1,925.—Syrup of Hypophosphites with Iron** (X.).

"I have trouble in making syrup of hypophosphites with iron, U. S. Ph. The lactate of iron precipitates from the syrup. Will you please give the reason for this and state how it may be prevented."

Our correspondent has purchased the lactate of iron sold by one of our most prominent chemical houses. But we must tell him that no lactate of iron is made in this country, all lactic acid and lactates being imported from Germany. German manufacturers generally carry two or three kinds, the best being designated as "crystallized in crusts." But this is not what is usually purchased by dealers abroad. It costs nearly double as much as the common pulverulent lactate. But it is the only kind which ought to be used. You will have no difficulty in getting it through your wholesale house. Ask for "lactate of iron, crystallized, in crusts, in original bottle of manufacturer" and you will get what you want. When lactate of iron is made, that which crystallizes in the original solution, on being removed, is quickly dried and preserves its character as a *ferrous* salt. The mother-liquid finally remaining, on being evaporated to dryness, yields an amorphous powdery mass in which already a good deal of ferric or basic salt may be developed. At all events it is not as soluble as the other, usually leaving some insoluble residue.

The solution of the lactate of iron may be much facilitated and rendered permanent by taking an amount of citrate of potassium equal to that of the iron salt and some water, and warming the two substances together.

Lactate of iron has, however, been found to impart to the syrup not only a slightly mawkish taste, but it has also been stated to be the cause of the darkening of the syrup. For this reason it has been recommended to replace it with a corresponding quantity of tasteless tincture of iron equivalent to it.

**No. 1,926.—Incomplete Prescription** (L. D. N.).

This query came too late for the last number. The inquirer had a prescription for

℞ Yerba Santa....... ... ........................ ℥ vi.

Sig. Teaspoonful every two hours.

We are asked to state how we would have filled this prescription.

As the prescriber is stated by our correspondent to have been a young doctor, probably with limited experience only, at least in the knowledge of the newer drugs, we have not the least doubt that he meant to prescribe the fluid extract. Probably he had no very definite idea what "Yerba Santa" was; perhaps he thought it was a liquid originally. That the leaves of mountain-balm or Eriodictyon glutinosum cannot be well taken by the teaspoonful is plain; and as the only commonly used pharmaceutical preparation is the fluid extract, this must have been meant.

**No. 1,927.—Preservation of Natural Flowers** (W. M. H.).

Some years ago a patent was granted in Germany upon a process for preserving flowers, which was described by us in our vol. for 1884, page 45, as follows: The respective parts of the plant are coated with a solution of shellac or resin until they are perfectly dry. The moisture completely escapes after some time through the fine fissures of the coating. Finally, the coating is removed by the cautious use of alcohol, whereupon the organs will present their original sharp outline.

This process, however, is by no means new, as it has been practised, with various modifications, for many years previously. For instance, in Percy's Recept-Lexikon (Nürnberg, 1856), we find the following: "Take sandarac 1¼ oz., mastic ⅛ oz., camphor 1/16 oz., reduce them to a coarse powder and place them into a long-necked flask. Pour on 1⅛ pints of alcohol and digest at a moderate heat (avoiding loss of alcohol) and frequently agitating during the digestion. Then allow it to become clear by settling (or filter). With this solution coat the flowers or other parts of plants that are to be preserved, using a brush for the purpose. This will result in their retaining their natural color, and it will also protect them against insects."

It will be seen that this is the same process, in principle, as that patented in Germany.

Another method highly recommended is to dip the flowers in perfectly transparent solution of gum arabic in water, about 4 oz. to the pint, to which about ⅛ oz. of glycerin is added with advantage. They are then allowed to drain a few minutes, held downwards, and then set upright into a vase or bottle. As the mucilage dries it forms a coating which preserves the color. But even if the slightest portion has remained uncoated, the result will be a failure.

Another method has been given by the *Pharm. Journal* a number of years ago. It is thus described: "A vessel with a movable cover is provided, and having removed the cover from it, a piece of metallic gauze of moderate fineness is fixed over it, and the cover replaced. A quantity of fine sand is then taken, sufficient to fill the vessel and passed through a sieve into an iron pot, where it is heated with the addition of a small quantity of stearin (probably paraffin would be better, or a mixture of about 10 parts of paraffin and 1 part of naphthalin) carefully stirred so as to thoroughly mix the ingredients. The quantity of stearin to be added is at the rate of ⅛ part to 100 parts of sand. Care must be taken not to add too much, as it would sink to the bottom and injure the flowers. The vessel with the cover on and the gauze beneath it is then turned upside down, and the bottom being removed, the flowers to be operated on are carefully placed on the gauze and the sand gently poured in so as to cover the flowers entirely, the leaves being thus prevented from touching each other. The vessel is then put in a hot place, such for instance as the top of a baker's oven, where it is left for 48 hours. The flowers thus become dried, and they retain their natural colors. The vessel still remaining bottom upwards, the lid is taken off, and the sand runs away through the gauze, leaving the flowers uninjured."

**No. 1,928.—Solution of Indigo** (R.).

R. has made a solution of indigo in sulphuric acid, and has obtained a bluish-green liquid. He wants to know what it is.

We suspect the trouble was both with the indigo and with the acid. The very best Bengal or Caracas indigo should be used, and fuming or Nordhausen sulphuric acid should be employed for dissolving the indigo. The latter must be added in *powder* to the acid, a little at a time, and no heat must be allowed to be developed. On finally diluting with water and filtering through glass-wool or asbestos (either of which should have been previously treated with sulphuric acid and washed) a pure deep-blue liquid will be obtained.

The queries asked by our correspondent respecting proprietary remedies and formulas for "cures" cannot be answered by us.

No. 1,929.—**Rose Sachet** (R.).

Piesse gives the following:

Rose leaves, 1 lb.; santal wood, ground, ½ lb.; oil of rose, ¼ oz.

We think, however, that the quantity of the oil of rose is a mistake, a smaller amount being amply sufficient.

If the so-called "White Rose" flavor is wanted, this may be compounded as follows:

Alcoholic extract from French rose pomatum (1 lb. to pint), 8 fl. oz. Triple extract of rose (3 oz. of oil of rose dissolved in 1 gall. of alcohol), 4 fl. oz. Extract of violets (1 lb. violet pomade to pint), 2 fl. oz. Extract of musk (2 oz. musk to 1 gall. alcohol) 1 fl. oz.

No. 1,930.—**Acetate of Lead** (R.).

We are asked to state what causes the whitish turbidity when commercial acetate of lead is dissolved in water.

Soluble acetates, when exposed to air, are liable to lose some acetic acid, which is not as tenaciously combined as other acids would be. In fact, the slow elimination of acetic acid is, in these cases, clearly noticeable even to the sense of smell. Naturally, as some of the acetic acid leaves the salt, there is either formed a basic acetate, or in consequence of the presence of carbonic acid in the air, some carbonate of lead is formed. It is this latter, chiefly, which cause the white turbidity when acetate of lead, which has undergone this change, is dissolved in water. The turbidity may, however, be at once removed by cautiously adding acetic acid, which will redissolve the suspended matter.

No. 1,931.—**Mistura Camphoræ** (R.).

According to our correspondent, there has been some wrangling between a customer and two different drug stores about the correct preparation of a physician's prescription containing "Mist. Camphoræ." One of the pharmaceutists put up the mixture according to Parrish, and the other used camphor water. We are now asked to decide who was correct.

Well, to a certain extent they were both correct, but the one who dispensed Camphor Water has probably the driftiest arguments in his favor. In the London, Edinburgh, and Dublin Pharm. "Mistura Camphoræ" was the regular title of camphor water. The British Pharm. changed it to Aqua Camphoræ, giving "Mistura Camphoræ" as a synonym. Older physicians, and those who have come from any portion of the British empire, still often use the old name. Hence it is justifiable to put up Aqua Camphoræ under the circumstances.

As there are other camphor mixtures besides Parrish's, it may be doubted whether the latter or any other of these special mixtures ought to be dispensed, unless the name "Parrish," "Hope," etc., is specially added in the prescription. Here, however, it will much depend upon who the prescriber is, whose customs or habits will often be well known to the pharmacists who are in the habit of putting up his prescriptions.

We would state in conclusion that we would probably in *all* cases, where we had no *special* reason to suppose that Parrish's mixture was demanded, put up "Aqua Camphoræ."

No. 1,932.—**Syrup of Dover's Powder** (New Haven).

This correspondent refers to a formula for syrup of Dover's Powder, published some time ago in another journal, in which sulphate of potassium is directed as one of the ingredients, which does not, however, all stay in solution; also the tincture of opium of the U. S. Ph. of 1870 is ordered, which is certainly not an advantage in this case.

Instead of criticising the formula communicated to us, we will give a better one.

| | |
|---|---|
| Deodorized Tincture of Opium | 480 min. |
| Fluid Extract of Ipecac | 48 " |
| Sugar | 10 tr. oz. |
| Cinnamon Water, to make | 12 fl. oz. |

Mix the Deodorized Tincture of Opium with the Fluid Extract and 5 fl. oz. of Cinnamon Water, shake frequently during one hour, then filter, add the Sugar and enough Cinnamon Water to make 12 fl. oz. Dissolve by agitation and strain.

Each fluidrachm corresponds to 5 grains of Dover's Powder.

As the Deodorized Tincture of Opium of the U. S. is made to represent 10 per cent of its *weight* of opium, 480 *minims* of it are not exactly equivalent to 48 grains of opium. But the difference is so slight that it may be disregarded. If the tincture is prepared *strictly* according to the U. S. Ph. (1880), about 504 minims of it will represent 48 grains of opium.

No. 1,933.—**Blowpipe** (R.).

The name of the maker of the blowpipe figured in our last March number, page 45, is not mentioned in the publication from which we have taken it. But you may ascertain it by directing a letter of inquiry to Dr. Theodor Koller, care of A. Hartleben, Publisher, at Vienna, Austria. You had better inclose in your letter a sketch of the apparatus, so that he may recognize it at once.

No. 1,934.—**Tinctura Serpentariæ Composita** (F. S.).

Our correspondent says: "A prescription was brought to me for "Tinct. Serpentariæ Comp." What would you give for it? I gave tinct. cinchonæ co., but the party claims it is not correct."

There is a compound tincture of serpentaria used in eclectic practice. King's American Dispensatory gives the following formula:

| | |
|---|---|
| Serpentaria | ℥ 2 |
| Ipecac | ℥ 2 |
| Saffron | ℥ 2 |
| Camphor | ℥ 2 |
| Opium | ʒ 2 |
| Diluted Alcohol or Holland Gin | fl. ℥ 96 |

Macerate for fourteen days, express and filter through paper.

King says that the above is the original and undoubtedly the best method of preparing this tincture, but he adds that some physicians are opposed to the opium and substitute in its place cypripedium root ℥ 8.

No. 1,935.—**Aroma for Dentifrice** (N. S.).

It is impossible for us to furnish the formula of the aroma of a certain manufacturer's dentifrice, as we do not know it. It will take a long time, and much expenditure of valuable material, to get at the approximate composition.

But we can give you at least the basis of an aroma of which a sample stands before us at present, and which we believe can be utilized to advantage. There is no orris in it, which may be considered a merit, because so many perfumes have been overdone with orris that many persons are tired of it. The combination we refer to is as follows:

| | |
|---|---|
| Safrol | 60 min. |
| Oil of Pinus Pumilio | 20 " |
| " Curaçao | 20 " |
| " Vetivert | 1 " |
| " Wintergreen | 2 " |
| " Anise, Saxony | 4 " |
| " Rose Geranium | 1 " |

Dissolve in deodorized alcohol, and use a sufficient quantity for flavoring. Or dilute the alcoholic solution with much water, sweeten it with a little sugar, and use as a mouth-wash. It leaves a pleasant and refreshing taste in the mouth long after it has been used. As to the amount of water to be used for dilution, this may be carried to the limit of solubility of the oils used in the smallest quantity.

Safrol is the pure odorous portion of ordinary oil of sassafras, and is now obtained, by fractional distillation, from oil of camphor. It is much preferable to the crude natural oil. Oil of Pinus Pumilio is distilled from the needles of the mountain or mugho pine in southern Europe. It is prepared by Schimmel & Co., of Leipzig, and may be had from their New York agents. Oil of Curaçao must be carefully examined to make sure that it is free from terebinthinate odor or taste. If the oil of Pinus Pumilio is not very fresh and nice, it may be used in smaller quantity, or perhaps omitted altogether. A still finer flavor is afforded by the Oil of Pinus Picea, but this is more expensive.

No. 1,936. — **Druggists' General Receipt Book** (S. and J.).

As you say, most, or perhaps all, of the receipt books are defective in various directions, being either generally out of date, or barren in some important branches, or unreliable as to information. The best way, in our days, to get information is to carefully scan the files of the first-class pharmaceutical papers, and particularly the indexes of the completed volumes. Consult also our advertisement pages.

No. 1,937.—**Distillation of Essential Oils** (Tennessee).

Any description of the process of distillation, and the apparatus required for different purposes, which we could give in these columns at present, would be insufficient for you, as you appear to require instruction in the very rudiments of this operation. We can do nothing better, under the circumstances, than to refer you to some works, from which you will obtain the desired information.

We quote the following: Piesse, "The Art of Perfumery," (London; with illustrations of stills, etc.); Byrn, "The Complete Practical Distiller" (Philad.); Atkinson, "Die Fabrikation der ätherischen Oele" (Wien, second ed., with illustrations); Hofmann, C., "Chemisch-technisches Universal Receptbuch" (Berlin, 1880, vol. I., p. 168, etc.; many illustrations).

You may obtain any of these through some New York book dealer. Some of the German works quoted above are specially useful; you will have to find some one to translate the important chapters for you.

No. 1,938.—**Breithaupt's Essential Oil Still** (Philadelphia).

We do not know the residence or address of the patentee of the essential oil still which we have given a description and illustration of in our March number. As is our usual custom, we do *not* ask inventors to place clichés, etc., at our disposal for publication in our journal, but we select what we deem of interest for our readers without being at any time influenced by any other considerations. This, by way of explanation, why we are unable to give the desired information. But you may easily obtain the latter by commissioning some prominent patent firm to ask their correspondents in Berlin to forward the desired address. Or write direct to a patent agent in Berlin, for instance, M. M. Rotten, Schiffbauerdamm 29*a*, Berlin, N. W. You might also consult a file of original German patents (which are no doubt kept on file in one of your libraries). The exact address of the patentee is usually given in the patent.

No. 1,939.—**Pulv. Hdg.** (Supplement to Query 1,893 in our March number).

*Editor American Druggist*:—"Pulv. Hdg." in Query 1,893 undoubtedly means "Pulv. Pil. Hydrarg.," which can be obtained from any jobber or any wholesale house.

W. V. SPINNING.

PERU, IND.

No. 1,940.—**Doctor of Pharmacy** ("Old Licentiate in Pharmacy").

There is only one pharmaceutical college in this country, viz., the National College of Pharmacy at Washington, which, by virtue of its charter, grants the degree of Doctor of Pharmacy to its graduates. The conditions under which this can be acquired may be learned by addressing the secretary of the college, Mr. R. L. Eliot.

No. 1,941.—**Granular Effervescent Hydrobromate of Caffeine** (J. H. L.).

We are not aware of the exact composition or mode of preparation of the commercial article named by our correspondent.

The hydrobromate of caffeine, like most of its other compounds with acids, is not a permanent salt, because the alkaloid will separate from the acid in the presence of water, which can be shown in various ways; for instance, by agitating the liquid with chloroform which will dissolve out the free caffeine.

We have applied to a well-posted friend for information regarding a formula for the preparation above mentioned. He states that the following formula will probably furnish a satisfactory product. He has employed it himself, having adopted some improvements in manipulation on the basis of certain processes recently given by Dieterich:

| | |
|---|---|
| Caffeine | 40 parts. |
| Benzoate Sodium | 60 " |
| Bromide Sodium | 20 " |
| Bicarbonate Sodium | 400 " |
| Tartaric Acid | 320 " |
| Sugar | 400 " |
| Citric Acid | 75 " |
| Alcohol | 300 " |

Reduce the first five ingredients to a fine powder, and mix them intimately. Then warm the mixture very gently in a capsule over a water-bath, and moisten it with the alcohol in which the citric acid had previously been dissolved. Rub the damp mass, by means of a pestle or other suitable non-metallic instrument through a sieve or colander, and dry the granular mass, in thin layers, in a drying oven. Then rub it again gently through a suitable sieve to separate the granules. Whatever has fallen to powder may be added to the next batch.

The yield is about 1,300 parts. One grain of caffeine is contained in 33 grains of the product. The average dose, in cases when this remedy is taken in the present form, will be about 1 teaspoonful of the granulated salt, to be taken with water, while it effervesces.

No. 1,942.—**Haustus Ferri Sulph.** (J. W. G.).

"Please inform me what is the meaning of *Haust Ferri Sulph.* in the following recipe:

℞ Haust. Ferri Sulph ........fl. ℥ viij.
Liq. Ext. Ergotæ.........fl. ʒ ij.

M. et Sig. Fl. ℥ i. ter in die.

The writer of this prescription appears to have acquired his professional training in England or some of its dependencies. The *Haustus Ferri Sulphatis* is very likely a house-mixture in some British hospital, but we have been unable to identify it under this name, though we have examined Squire's Formulary of London Hospitals and many other works of reference. We could give many guesses, but a guess would not be a satisfactory answer. The extractum ergotæ liquidum is a preparation officinal in the British Pharmacopœia.

Should any of our readers be able to through light upon the query, we shall be obliged.

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To give windows an appearance of frost in midsummer, apply a solution of Epsom salt in beer.

### Pharmaceutical Associations in 1887.

THE following Calendar has been compiled and published by the *National Druggist*.

| STATE. | MEETING. | PLACE. | DATE. | PRESIDENT. | SECRETARY. | LOCAL SECRETARY. | State Pharmacy Law. |
|---|---|---|---|---|---|---|---|
| Alabama | 6th. | Mobile | May 10 | A. L. Stollenwerck, Birmingham | P. C. Candidus, Mobile | W. F. Prince, Mobile | Yes. |
| Alaska Territory | | | | | | | No. |
| Arizona Ter. | | | | | | | No. |
| Arkansas | | Little Rock | | Dr. J. B. Bond, Little Rock | J. R. Colburn, Little Rock | | No. |
| California | 18th. | San Francisco | | Wm. Searby, San Francisco | F. Troppmann, San Francisco | | No. |
| Colorado | | | | | | | Yes. |
| Connecticut | 11th. | Meriden | Feb. 1-2 | Frank M. Wilson, Willimantic | Fred. Wilcox, Waterbury | Jno. H. Parker, Meriden | Yes. |
| Dakota Territory | | | | J. W. Von Meda, Fargo | W. L. Haussman, Grafton | | Yes. |
| Delaware | | | | | | | Yes. |
| District of Col | | | | | | | Yes. |
| Florida | | | | | | | No. |
| Georgia | 12th. | Cumberland Island | April 18 | J. W. Stanford, Cuthbort | H. R. Slack, Jr., La Grange | | Yes. |
| Idaho | | | | | | | No. |
| Illinois | 8th. | Decatur | June 14 | B. F. Gardner, Atlanta | L. C. Hogan, Englewood | W. C. Armstrong, Decatur | Yes. |
| Indiana | 5th. | Richmond | June 7-8 | Leo Eliel, South Bend | Frank S. Hereth, Indianapolis | Wm. H. Ross, Richmond | No. |
| Indian Territory | | | | | | | No. |
| Iowa | 8th. | Waterloo | May 11 | A. H. Miles, Des Moines | Rosa M. Upson, Marshalltown | C. D. Wangler, Waterloo | Yes. |
| Kansas | 8th. | Wichita | June 8 | W. C. Sears, Burlington | J. T. Moore, Lawrence | J. P. Allen, Wichita | Yes. |
| Kentucky | 10th. | Louisville | May 18 | J. W. Fowler, Louisville | W. B. McRoberts, Stanford | Edw. Goebel, Louisville | Yes. |
| Louisiana | 5th. | New Orleans | April 13 | Oscar Robin, New Orleans | L. F. Chalin, New Orleans | | No. |
| Maine | | | | | | | Yes. |
| Maryland | 3d. | Ocean City | July 19 | A. J. Corning, Baltimore | M. L. Byers, Hagerstown | | No. |
| Massachusetts | 6th. | Holyoke | June 7 | Henry Canning, Boston | Jos. W. Colcord, Lynn | Chas. E. Bardwell, Holyoke | Yes. |
| Michigan | 5th. | Petoskey | July 12 | F. J. Wurzburg, Grand Rapids | Stanley E. Parkhill, Owosso | Guy M. Harwood, Petoskey | Yes. |
| Minnesota | 3d. | New Ulm | June 12 | John R. Jones, Mankato | E. F. Allen, Minneapolis | Emil Wischcke, New Ulm | Yes. |
| Mississippi | 3d. | Jackson | May 17 | Byron Kemly, Jackson | H. F. West, Natchez | | No. |
| Missouri | 9th. | Sweet Springs | June 21 | A. H. Caffee, Carthage | G. H. Chas. Kile, St. Louis | L. Kuntz, Brownsville | Yes. |
| Montana Ter | | | | | | | No. |
| Nebraska | 6th. | Omaha | May 10 | Jas. Reed, Nebraska City | Chas. J. Daubach, Omaha | N. A. Kuhn, Omaha | Yes. |
| Nevada | | | | | | | No. |
| New Hampshire | 14th. | Manchester | Sept. — | Nelson S. Whitman, Nashua | Chas. B. Spofford, Claremont | | Yes. |
| New Jersey | | Paterson | May 18 | F. B. Kilmer, New Brunswick | R. H. Van Sant, Trenton | | Yes. |
| New Mexico Ter | | | | | | | No. |
| New York | 9th. | Thousand Isl'd Park. | June 21 | Chas. Z. Otis, Binghamton | Clay W. Holmes, Elmira | R. E. Phillips, Fulton | Yes. |
| North Carolina | | Ashville | Aug. 12 | A. W. Rowland, Wilson | J. C. Munds, Statesville | B. E. Leadberry, Ashville | Yes. |
| Ohio | 9th. | Akron | June 8 | Virgil Coblentz | Louis C. Hopp, Cleveland | C. Truman | Yes. |
| Oregon | | | | | | | No. |
| Pennsylvania | 10th. | Philadelphia | June 14 | Jas. A. Meyers, Columbia | Jacob A. Miller, Harrisburg | Wm. B. Thompson, Philad'ia. | No. |
| Rhode Island | | | | F. J. Phillips, Providence | A. W. Wellington, Providence | | Yes. |
| South Carolina | | Charleston | Nov. — | C. P. Aimor, Charleston | P. Wineman, Charleston | | Yes. |
| East Tennessee | | Chattanooga | May 9 | R. H. Gorden, Nashville | J. T. Lillyett, Memphis | | No. |
| Texas | 8th. | Fort Worth | May 10 | Geo. W. Price, Bandera | W. L. Tucker, Waco | E. D. Aesch, Fort Worth | No. |
| Utah Territory | | | | | | | No. |
| Vermont | | | | | | | No. |
| Virginia | 6th. | Richmond | May 10 | Hugh Blair, Richmond | Ed. R. Beckwith, Petersburg | Polk Miller, Richmond | Yes. |
| Washington Ter | | | | | | | No. |
| West Virginia | | | | | C. Mornkemeller, Wheeling | | Yes. |
| Wisconsin | 8th. | Milwaukee | Aug. 10 | F. M. Givens, Fond du Lac. | E. B. Heimstreet, Jamesville | Adam Conrath, Milwaukee | Yes. |
| Wyoming | | | | | | | Yes. |
| A. P. A. | 35th. | Cincinnati | Sept. 5 | C. A. Tufts | J. M. Maisch, Philadelphia, Pa | Geo. W. Voss, Cincinnati | |
| N. R. D. A. | | Cincinnati | Sept. 5. | A. H. Hollister, Madison, Wis. | L. E. Nicot, New York | | |
| N. W. D. A. | | Boston. | | D. R. Noyer, St. Paul, Minn | A. M. Mervin, Minneapolis | | |

## SELECTIONS FROM THE HOSPITAL FORMULARY

### OF THE DEPARTMENT OF PUBLIC CHARITIES AND CORRECTION OF THE CITY OF NEW YORK.

(Continued from page 80.)

### Correction.

In some of the formulæ taken from the Hospital Formulary of the Department of Public Charities and Correction, printed in our last number, some errors of the compositor have been accidentally overlooked. Our attention was drawn to them too late to make the correction in the same number. The *corrected* formulæ are the following:

219. *Petrolatum Cocainæ.*

℞ Cocainæ Hydrochloratis...gr. 2
Petrolati..................gr. 120

220. *Petrolatum Hydrargyri Ammoniati.*

℞ Hydrargyri Ammoniati....gr. 40
Petrolati.................gr. 480

222. *Petrolatum Hydrargyri Oxidi Rubri.*

℞ Hydr. Oxidi Rub..........gr. 60
Petrolati..................gr. 480

223. *Petrolatum Iodoformi et Atropinæ.*

℞ Iodoformi.....................gr. 30
Atropinæ Sulphatis.......gr. 1
Petrolati....................gr. 240

224. *Petrolatum Physostigminæ.*

℞ Physostig. Salicyl.........gr. 2
Petrolati....................gr. 240

227. *Unguentum Calaminæ.*

℞ Calaminæ præpar..........part 1
Unguenti (*vel* Petrolati).... " 5

312. *Glyceritum Fellis Bovis* (*Glycerite of Ox-Gall*).

℞ Fellis Bovis Inspissati..... ℥ 8
Glycerini.................fl. ℥ 2
Acidi Salicylici.............gr. 10
Aquæ............q. s. ad fl. ℥ 6

Mix the inspissated ox-gall with the glycerin, salicylic acid, and 1 fluidounce of water, and heat on a water-bath until the ox-gall is dissolved. Then allow it to cool, and add enough water to make 6 fluidounces.

313. *Glyceritum Hydrargyri Bichloridi.*

℞ Hydrargyri Chloridi Corrosivi. ℥ 8
Ammonii Chloridi............. ℥ 1
Glycerini...........q. s. ad fl. ℥ 16
Rosanilinæ Hydrochloratis....q. s.

Add the corrosive chloride of mercury, reduced to powder, and the chloride of ammonium, to 7 fluidounces of glycerin, previously heated on a water-bath. Continue the heat, constantly stirring with a glass rod, until solution has taken place. Allow the liquid to cool, then measure it, and make it up, with glycerin, to 16 fluidounces. Finally, tint it with a small quantity of solution of fuchsine, so as to impart to it a pinkish color.

*Note.*—Every 2 minims contain 1 grain of corrosive sublimate.

314. *Linimentum Aconiti et Belladonnæ Compositum* (*Bureau O. D. P.*).

℞ Tinct. Opii,
Chloroformi,
Tinct. Aconiti,
Tinct. Belladonnæ......āā fl. ℥ ⅛
Linim. Saponis......... fl. ℥ 2

Mix. (*Dr. T. W. O. Flinn.*)

315. *Linimentum Aconiti et Chloroformi Compositum* (*Bureau O. D. P.*).

℞ Tinct. Aconiti,
Chloroformi,
Spir. Ammoniæ,
Olei Thymi,
Olei Terebinthinæ.......āā fl. ℥ 1
Spir. Camphoræ.. .... fl. ℥ 3

Mix.

316. *Linimentum Chloroformi Compositum* (*Char. Hosp.*).

℞ Chloroformi,
Tinct. Opii.............āā fl. ʒ 2
Linim. Saponis......... fl. ℥ 1½

Mix.

317. *Liquor Arsenii Bromidi, Clemens.* (*Clemens' Solution of Bromide of Arsenic.*)

℞ Acidi Arseniosi,
Potassii Carbonatis.....āā gr. 73
Bromi................. gr. 146
Aquæ............q. s. ad fl. ℥ 16

Boil the arsenious acid with the carbonate of potassium and 10 fluidounces of water until solution is effected. Allow to cool, and add enough water to make 14 fluidounces. Then add the bromine, and, lastly, enough water to make 16 fluidounces. Agitate the mixture several times daily during a week, then set it aside until it is colorless (which will require several weeks), when it will be ready for use. Keep in a cool, dark place.

*Note.*—This solution contains, approximately, 1 per cent of arsenious acid.

318. *Liquor Atropinæ et Agaricini* (*Bell. Hosp.*)

℞ Agaricini.................gr. 10
Atropinæ Sulphatis.......gr. 1
Acidi Sulphurici Arom.... ♏ 1200

Dissolve and filter.

*Dose.*—10 minims, containing $\frac{1}{120}$ gr. of sulphate of atropine, $\frac{1}{12}$ gr. of agaricin, and 10 min. of aromatic sulphuric acid. To be administered in syrup or simple elixir. Used to prevent or allay sweating after administering antipyrin or other antipyretics; also, in cases of phthisis.

*Note.*—The agaricin to be used is the pure *white* agaricin of Merck. This is, properly speaking, agaric acid.

319. *Liquor Electropœicus* (*Battery Fluid*).

a. *For the Carbon and Zinc Battery.*

1. For ordinary use:

℞ Bichromate of Potassium....6 av. oz.
Sulphuric Acid, commerc'l...5 fl. oz.
Water, cold.................3 pints.

Add the acid slowly to the water. When the liquid is cold, add the bichromate reduced to powder, and dissolve by stirring.

2. For use with the galvano-cautery:

℞ Bichromate of Potassium.. 6½ av. oz.
Sulphuric Acid, commerc'l 13 fl. oz.
Water, cold.............. 3 pints.

To 1 pint of water add slowly 8 fluidounces of the acid, pour the mixture upon the powdered bichromate, and stir until it is dissolved. Then add 2 pints of water, and when the mixture has become cold, add 5 more fluidounces of the acid.

b. *For the Leclanché Battery.*

℞ Chloride of Ammonium .... 6 av. oz.
Water......................20 fl. oz.

Dissolve. Fill the cell with this solution to near the top.

320. *Liquor Hypophosphitum Compositus* (*Bell. Hosp.*).

℞ Calcii Hypophosphitis.........gr. 640
Sodii Hypophosphitis ........gr. 384
Potassii Hypophosphitis.......gr. 128
Liq. Ferri Hypophosphitis..... ♏ 384
Aquæ................q. s. ad fl. ℥ 32

Dissolve and filter.

*Dose*—1 to 4 fluidrachms. (*Dr. W. M. Polk.*)

*Note.*—The solution of hypophosphite of iron is that of the New York and Brooklyn Formulary, 6 minims of which contain 1 grain of the salt.

321. *Liquor Morphinæ Sulphatis,* "*U. S.*" ("*United States Solution of Morphine*").

℞ Morphinæ Sulphatis ....... gr. 1
Aquæ Destillatæ .......... fl. ℥ 1

Dissolve.

*Note.*—This is to be always dispensed, in this Department, in a flint-glass poison-bottle. Magendie's solution always in a *blue* poison-bottle.

322. *Liquor Opii Compositus,* Squibb.

COMPOUND SOLUTION OF OPIUM, SQUIBB.

℞ Liq. Opii Deodoratii.....fl. ʒ 14
Alcohol.................fl. ʒ 13
Chloroformi Purificati...fl. ʒ 1
Ætheris Acetici.........fl. ʒ 2

Mix. Dose—15 to 30 minims.

*Note.*—The preparation contains 6 grains of morphine.

323. *Liquor Potassii Chloratis et Ferri.*

"JACOBI'S SPECIAL."

℞ Potassii Chloratis........gr. 80
Tinct. Ferri Chloridi..... ♏ 160
Glycerini...............fl. ℥ 2
Aquæ..........q. s. ad. fl. ℥ 8

Dissolve and mix. *Dose*—Half a fluidounce.—(*Dr. Abraham Jacobi.*)

324. *Liquor Sodii Salicylatis.*

To prepare a solution of salicylate of sodium of a given strength from salicylic acid and bicarbonate of sodium, the following proportions are required, in which the acid is always slightly in excess.

| Salicylic Acid. | | Bicarbonate of Sodium. | | Make Salicylate of Sodium. | |
|---|---|---|---|---|---|
| 90 | grains. | 50 | grains. | 100 | grains. |
| 170 | " | 100 | " | 200 | " |
| 260 | " | 150 | " | 300 | " |
| 345 | " | 200 | " | 400 | " |
| 415 | " | 240 | " | 1 | troy oz. |
| 430 | " | 250 | " | 500 | grains. |

*Note.*—The solution should be made so that the acid always predominates, otherwise it will gradually turn dark. The acid should first be mixed with the water, and the bicarbonate should be added gradually to it. The darkening of this solution may also be prevented by dissolving in the water a small quantity of hyposulphite of sodium (about 120 grains for each pint of solution).

325. *Mistura Anodyna* (Bell. Hosp.).

"GIBSON'S SPECIAL."

℞ Tinct. Opii................ ♏ 90
Ext. Belladonnæ Fl........ ♏ 16
Chloroformi Purificati.... ♏ 30
Syrupi,
Aquæ..................āā fl. ℥ 4

Mix.

326. *Mistura pro Asthmate* (Bell. Hosp.).

ASTHMA MIXTURE.

℞ Liq. Morphinæ Sulph., "U. S."
Spir. Ætheris Comp..āā part. æqu.

Mix. *Dose*—A teaspoonful.

327. *Morell's Embalming Liquid.*

Arsenious Acid.......14 parts.
Soda (caustic)......... 7 "
Carbolic Acid..a suff. quantity.
Water, enough to make 100 parts.

Dissolve the arsenious acid and the caustic soda in 20 parts of water with the aid of heat. Allow the solution to cool, and then add to it just enough carbolic acid to render it opalescent. Finally, add enough water to make the product weigh 100 parts.

Used for embalming, and for preserving anatomical specimens.

328. *Mueller's Fluid.*

Bichromate of Potassium...... ... 2 to 2½ parts.
Sulphate of Sodium.. 1 part.
Water, enough to make 100 parts.

Dissolve. Used for hardening and preserving anatomical specimens.

### 329. *Saturation Tables.*

The following two tables give the equivalent quantities of the more important acids and alkalies required to saturate, respectively, 10 parts by weight of each.

Where a percentage figure is given behind the name of an acid or alkali, this indicates the percentage strength required by the U. S. Pharmacopœia.

I.—SATURATION TABLE FOR ACIDS.

| 10 PARTS OF ANY OF THE FOLLOWING ACIDS | require for saturation the following parts of Ammonium Carbonate. | Magnesium Carbonate. | Potassium Carbonate, 81%. | Potassium Bicarbonate. | Sodium Carbonate, 96%. | Sodium Bicarbonate, 99%. |
|---|---|---|---|---|---|---|
| Acetic Acid (36%) | 3.14 | 2.90 | 5.11 | 6.00 | 8.94 | 5.09 |
| Citric Acid | 7.48 | 6.91 | 12.17 | 14.29 | 21.28 | 12.29 |
| Hydrochloric Acid (31.9%). | 4.59 | 4.24 | 7.46 | 8.76 | 12.53 | 7.44 |
| Nitric Acid (69.4%) | 5.19 | 5.33 | 8.45 | 9.91 | 14.77 | 8.41 |
| Salicylic Acid | 3.79 | 3.51 | 12.35 | 7.25 | 10.79 | 6.15 |
| Sulphuric Acid (96%) | 10.25 | 9.48 | 16.69 | 19.59 | 29.18 | 16.62 |
| Tartaric Acid | 6.98 | 6.45 | 10.36 | 13.33 | 19.86 | 11.31 |

II.—SATURATION TABLE FOR ALKALIES.

| 10 PARTS OF ANY OF THE FOLLOWING ALKALIES | require for saturation the following parts of Acetic Acid, 36%. | Citric Acid. | Hydrochloric Acid, 31.9%. | Nitric Acid, 69.4%. | Salicylic Acid. | Sulphuric Acid, 96%. | Tartaric Acid. |
|---|---|---|---|---|---|---|---|
| Ammonium Carbonate | 31.85 | 13.38 | 21.80 | 17.34 | 26.37 | 9.75 | 14.33 |
| Magnesium Carbonate | 34.44 | 14.46 | 23.57 | 18.76 | 28.51 | 10.54 | 55.49 |
| Potassium Carbonate (81%) | 20.65 | 8.22 | 13.39 | 10.66 | 16.20 | 5.84 | 8.80 |
| Potassium Bicarbonate | 16.67 | 7.00 | 11.44 | 9.08 | 13.80 | 5.10 | 7.50 |
| Sodium Carbonate (96%) | 11.16 | 4.70 | 7.66 | 6.09 | 9.26 | 3.4 | 5.03 |
| Sodium Bicarbonate (99%) | 19.64 | 8.25 | 13.45 | 10.70 | 16.22 | 6.01 | 8.84 |

### 329a. *Table of the Solubility of the More Common Chemicals.*

*One* (1) part, by weight of the substance, is soluble at about 60° F., in the stated number of parts, by weight of water.

*Note.*—Chemicals which are very little soluble, or practically insoluble in water (such as subnitrate of bismuth, oxalate of cerium, santonin, etc.) are here omitted. Many of those omitted are soluble in alcohol or other solvents.

*Explanation of abbreviations:* v. s., very soluble. sp. s., sparingly soluble.

| | |
|---|---|
| Acid, Arsenious | 30-80 |
| " Benzoic | 500 |
| " Boric | 25 |
| " Carbolic | 20 |
| " Citric | 0.75 |
| " Gallic | 100 |
| " Oxalic | 9 |
| " Salicylic | 450 |
| " Tannic | 6 |
| " Tartaric | 0.7 |
| Alum | 10.5 |
| Aluminium Sulphate | 1.2 |
| Ammonium Benzoate | 5 |
| " Bromide | 1.5 |
| " Carbonate | 4 |
| " Chloride | 3 |
| " Iodide | 1 |
| " Nitrate | 0.5 |
| " Phosphate | 4 |
| " Sulphate | 1.3 |
| Ammonium Valerianate | v. s. |
| Antifebrin (Acetanilide) | 200 |
| Antimony and Potassium Tartrate. | 17 |
| Antipyrin | 0.8 |
| Apomorphine Hydrochlorate | 6.8 |
| Atropine | 600 |
| " Sulphate | 0.4 |
| Barium Chloride | 2.5 |
| " Nitrate | 13 |
| Butyl-Chloral (Croton-Chloral) | 20 |
| Cadmium Sulphate | 2 |
| Caffeine | 75 |
| " Sodio-Benzoate | v. s. |
| " Sodio-Salicylate | v. s. |
| Calcium Bromide | 0.7 |
| " Chloride | 1.5 |
| " Hypophosphite | 6.8 |
| Chloral | v. s. |
| Cinchonidine | 1680 |
| " Sulphate | 100 |
| Cinchonine | 3700 |
| " Sulphate | 70 |
| Cocaine | 704 |
| " Hydrochlorate | v. s. |
| Copper Acetate | 15 |
| " Sulphate | 2.6 |
| Codeine | 80 |
| " Phosphate | 4 |
| Hyoscyamine Sulphate (amorphous), | v. s. |
| Glycyrrhizin Ammoniated | v. s. |
| Iron and Amm. Citrate | v. s. |
| " " " Sulphate | 3 |
| " " " Tartrate | v. s. |
| " " Potass. Tartrate | v. s. |
| " " Quinine Citrate | v. s. |
| " " Strychnine Citrate | v. s. |
| " Chloride | v. s. |
| " Citrate | v. s. |
| " Hypophosphite | sp. s. |
| Iron Lactate | 40 |
| " Phosphate (scales) | v. s. |
| " Pyrophosphate (scales) | v. s. |
| " Sulphate | 1.8. |
| Lead Acetate | 1.8. |
| " Nitrate | 2 |
| Lime Caustic | 750 |
| " Chloride (Bleaching Powder) | 20 |
| Lithium Benzoate | 4 |
| " Bromide | v. s. |
| " Citrate | 5.5. |
| Lithium Salicylate | v. s. |
| Magnesium Chloride | 1 |
| " Sulphate | 0.8 |
| " Sulphite | 20 |
| Manganese Sulphate | 0.7 |
| Mercury Bichloride | 16 |
| " Cyanide | 12.8 |
| Morphine | 1000 |
| " Acetate | 12 |
| " Hydrochlorate | 24 |
| " Sulphate | 24 |
| Physostigmine (Eserine) Salicylate. | 130 |
| " Sulphate | v. s. |
| Potassa (caustic) | 0.5 |
| Potassium Acetate | 0.4 |
| " and Sod. Tartrate | 2.5 |
| " Bicarbonate | 3.2 |
| " Bichromate | 10 |
| " Binoxalate | 25 |
| " Bitartrate | 210 |
| " Bromide | 1.6 |
| " Carbonate | 1 |
| " Chlorate | 16.5 |
| " Chloride | 3 |
| " Citrate | 0.6 |
| " Cyanide | 2 |
| " Ferricyanide | 2.5 |
| " Ferrocyanide | 4 |
| " Hypophosphite | 0.6 |
| " Iodide | 0.8 |
| " Nitrate | 4 |
| " Permanganate | 20 |
| " Sulphate | 9 |
| " Sulphite | 4 |
| " Tartrate | 0.7 |
| Quinidine | 2000 |
| " Sulphate | 100 |
| Quinine, anhydrous | 1960 |
| " hydrated | 1600 |
| " Bisulphate | 10 |
| " Hydrobromate | 16 |
| " Hydrochlorate | 34 |
| " Lactate | 4 |
| " Sulphate | 740 |
| " Valerianate | 100 |
| " and Urea Hydrochlorate | 1 |
| Resorcin | 0.7 |
| Salicin | 28 |
| Silver Nitrate | 0.8 |
| Soda (caustic) | 1.7 |
| Sodium Acetate | 3 |
| " Arseniate | 4 |
| " Benzoate | 1.8 |
| " Bicarbonate | 12 |
| " Bisulphite | 4 |
| " Borate | 16 |
| " Bromide | 1.2 |
| " Carbonate | 1.6 |
| " Chlorate | 1.1 |
| " Chloride | 2.8 |
| " Hypophosphite | 1 |
| " Hyposulphite | 1.5 |
| " Iodide | 0.6 |
| " Nitrate | 1.3 |
| " Phosphate | 6 |
| " Pyrophosphate | 12 |
| " Salicylate | 1.5 |
| " Sulphate | 2.8 |
| " Sulphite | 4 |
| " Sulphocarbolate | 5 |
| Strychnine | 6700 |
| " Acetate | 60 |
| " Sulphate | 10 |
| Sugar (cane) | 0.5 |
| " of Milk | 7 |
| Thalline Sulphate | 7 |
| Thymol | 1200 |
| Urethan | v. s. |
| Zinc Acetate | 3 |
| " Bromide | v. s. |
| " Chloride | v. s. |
| " Iodide | v. s. |
| " Sulphate | 0.6 |
| " Sulphocarbolate | 2 |

### 330. *Table showing the Percentage of anhydrous Base in the principal alkaloidal Salts.*

*Note.*—The figure placed behind each salt indicates the percentage of anhydrous alkaloid contained therein. For instance, Quinine Sulphate, 74.3, means that 100 parts of commercial crystallized sulphate of quinine contain 74.3 parts of pure anhydrous quinine.

| | |
|---|---|
| Aconitine Nitrate, cryst.[1] | 91.1 |
| Atropine Sulphate | 85.5 |
| Apomorphine Hydrochlorate | 87.9 |
| Cinchonidine Sulphate | 79.4 |
| Cinchonine Sulphate | 81.4 |
| Cocaine Hydrochlorate, anhydrous | 89.2 |
| " " hydrated,[2] | 80.7 |
| Codeine Hydrochlorate | 80.4 |
| " Phosphate | 70.5 |
| Digitaline,[3] | — |
| Hyoscyamine Sulphate, amorphous,[4]. | 85.5 |
| Morphine Acetate | 71.4 |
| " Hydrochlorate | 75.9 |
| " Sulphate | 75.2 |
| Physostigmine Salicylate,[5] | 66.6 |
| " Sulphate,[5] | 84.9 |
| Pilocarpine Hydrochlorate | 85.1 |
| Quinidine Sulphate | 82.9 |
| Quinine Acetate | 75.5 |
| " Bisulphate | 59.1 |
| " and Iron Citrate | 12.0 |
| " Hydrate | 85.7 |
| " Hydrobromate | 73.5 |
| " Hydrochlorate | 81.7 |
| " and Urea, Hydrochlorate | 69 0 |
| " Lactate | 78.2 |
| " Salicylate | 70.1 |
| " Sulphate | 74.3 |
| " Tannate about | 20.0 |
| " Valerianate | 72.9 |
| Strychnine Acetate | 86.2 |
| " and Iron, Citrate | 1.0 |
| " Nitrate | 84.1 |
| " Sulphate | 74.8 |

[1] Compare Note to No. 159. (January number, page 13.)

[2] Hydrochlorate of Cocaine, when crystallized from a watery solution, contains 2 molecules of water. This is the salt as usually supplied by manufacturers. But the anhydrous salt, more or less crystalline, is also obtainable. This contains 89.2 per cent of alkaloid.

[3] This is quoted here only for the purpose of attaching some remarks of practical interest. Digitalis contains a number of different principles which it is quite difficult to separate, and many of which have at one time or another been designated by their discoverers as "digitaline." Different processes, even with only slight modifications of solvents, produce varying mixtures of principles. In prescribing *digitaline*, therefore, the physician should specify the particular kind wanted, either by mentioning the manufacturer (Merck, etc.) or other authority, according to which it is prepared. (For instance: Digitaline, amorphous, *Codex*, or Digitaline, crystallized, *Codex*.) Merck's Digitaline (Digitalinum purum pulveratum, so-called "German Digitaline") consists principally of digitalein, is soluble in water (and therefore has no cumulative effect) and alcohol, but insoluble in ether and chloroform. Its average dose is 1-60th to 1-30th of a grain. The crystallized Digitaline of the French Pharmacopœia is that prepared after Homolle's process, but the additional purification of chloroform makes it about twice as strong. It is almost insoluble in water (and therefore acts cumulatively) and in ether, but soluble in chloroform, and less so in alcohol. Its dose is about 1-120th to 1-60th of a grain.

If Digitaline is prescribed without further specification, the so-called German Digitaline (Digitalinum purum pulveratum) of Merck ought to be supplied.

None of the principles extracted from Digitalis fully represent the crude drug in all its properties.

4. Compare Note to No. 166. (Jan. number, p. 14.)

5. Notice the great difference in the percentage of alkaloid in these two salts. Compare also Note to No. 168. (January number, page 14.)

### 331. *Transfusion Fluid.*

*a. Billroth's.*

| | | |
|---|---|---|
| Sodium Phosphate............ | gr. | 8 |
| Sodium Carbonate........... | " | 20 |
| Ammonium Carbonate....... | " | 20 |
| Sodium Chloride............ | " | 60 |
| Alcohol...................... | ♏ | 160 |
| Distilled Water, enought to make | fl. oz. | 20 |

*b. Little's.*

| | | |
|---|---|---|
| Sodium Phosphate............ | gr. | 8 |
| Potassium Chloride........... | " | 6 |
| Sodium Carbonate............ | " | 40 |
| Sodium Chloride.............. | " | 60 |
| Distilled Water, enough to make | fl. oz. | 20 |

*c. Weber's.*

| | | |
|---|---|---|
| Sodium Bicarbonate......... | gr. | 6 |
| Calcium Chloride............ | " | 6 |
| Potassium Chloride....... .. | " | 6 |
| Sodium Chloride............ | " | 480 |
| Distilled Water, enough to make | fl. oz. | 8 |

For use, dilute 1 fl. oz. of this solution with water at 120° F., so as to make 16 fl. oz.

### 332. *Volkmann's Antiseptic Liquid.*

| | |
|---|---|
| Thymol.................... | 1 part. |
| Alcohol .................. | 10 parts. |
| Glycerin.................. | 20 " |
| Water..................... | 100 " |

Dissolve the thymol in the alcohol, add the glycerin, and lastly the water.

Used as an antiseptic on wounds and dressings.

### 333. *Wickersheimer's Fluid.*

| | I. | II. |
|---|---|---|
| Arsenious Acid......... | 60 | 50 gr. |
| Chloride of Sodium..... | 5 | 4 dr. |
| Sulphate of Potassium.. | 18 | 10 " |
| Nitrate of Potassium.... | 100 | 70 gr. |
| Carbonate of Potassium. | 80 | 60 " |
| Glycerin................ | 35 | 35 fl. oz. |
| Methylic Alcohol. ...... | 6 | 6 fl. oz. |
| Water, enough to make. | 128 | 128 fl. oz. |

Prepare a solution after either of these formulæ, according to the object for which the solution is wanted.

No. I. is intended for preserving bodies or anatomical specimens by *injection*, and No. II., which is weaker, is used for preserving them by *immersion*.

*Note.*—The original formula was purchased from the inventor and patentee by the Prussian Government, and then officially published. It contained several incompatible ingredients, and has gradually been modified to the composition given above.

◆

### New-mown Hay.

| | |
|---|---|
| Tonca Beans, cut....... | 75 grs. |
| Orris Root.............. | 150 " |
| Vanillin................ | 8 " |
| Oil Bergamot........... | 30 drops. |
| " Neroli.............. | 2 " |
| " Rose................ | 2 " |
| " Lavender........... | 2 " |
| " Cloves.............. | 1 drop. |
| Patchouly Herb... .... | 8 grs. |
| Benzoic Acid........... | 8 " |
| Nettle Herb...... ...... | 30 " |
| Alcohol, deodor...... ... | 7 troy oz. |

Digest 14 days and filter.

### Mille Fleur Essence.

| | |
|---|---|
| Oil Cinnamon.......... | 10 drops. |
| " Neroli............... | 20 " |
| " Rose................ | 20 " |
| " Cloves.............. | 10 " |
| " Bigarade............ | 30 " |
| " Calamus............ | 20 " |
| " Geranium.......... | 150 min. |
| " Lemon ............. | 240 " |
| " Bergamot ....... ... | 2 fl. oz. |
| " Verbena ........... | 75 min. |

### White Rose Essence.

| | |
|---|---|
| Oil Rose .............. | 15 drops. |
| Patchouly Herb .. .... | 8 grs. |
| Musk........... ...... | 8 " |
| Deodorized Alcohol.... | 7 troy oz. |

Digest 14 days and filter.—After *Neueste Erf. und Erf.*

### Black Gloss for Leather, Shoes, etc.

A GOOD preparation is said to be the following:

| | |
|---|---|
| Lampblack....... .. .. | 4 parts. |
| Oil of Turpentine....... | 15 " |
| Shellac................. | 45 " |
| Burgundy Pitch........ | 20 " |
| Sandarac .............. | 2 " |
| Wood Spirit ........... | 360 " |

To be digested in a closed flask at a gentle heat.

Another authority recommends to replace the lampblack by a suitable quantity of alcohol-soluble nigrosine.

### Preparations for the Teeth.

MILLER, of Berlin, in an article upon the care of the teeth, published in the *Therapeutische Monatshefte* for March, 1887, gives the following as useful formulæ:

| | |
|---|---|
| ℞ Calcii Carbon. præcip. | ℥ 3¾ |
| Cort. Chin. fusc...... | ʒ 15 |
| Conch. præparat...... | ʒ 15 |
| Pulv. Myrrh.......... | ʒ 7½ |
| Pulv. Caryophyll..... | ʒ 3¾ |
| Ol. Cinnamomi........ | gtt. 10–15. |

M. exact. f. pulv.

The following is recommended as an efficient tooth soap:

| | |
|---|---|
| ℞ Magnesii Carbon.,<br>Rhiz. Irid. Florent.,<br>Talci,<br>Sapo. Medicat ......... | āā grs. 75 |
| Ol. Menth. Pip.......... | gtt. 10. |
| Mucilag. Gum. Arab.... | q. s. |

After a series of experiments the writer has fixed upon the following mouth-wash as the best germicide and antiseptic for use in the mouth:

| | |
|---|---|
| ℞ Acid. Thymic............ | grs. 4. |
| Acid. Benzoic............ | grs. 45. |
| Tinct. Eucalypt....... .. | ʒ 3½. |
| Alcohol. Absol.... ..... | ʒ 25. |
| Ol. Gaultheriæ........... | gtt. 25. |
| (Sive Ol. Menth. Pip...... | gtt. 20.) |

M. D. S.

Of this liquid a teaspoonful should be put in a glass of water, and the mouth should be rinsed after each meal, and before retiring.—*Med. News.*

### Kittary's Aromatic Carbolic Disinfectant.

THE following is the composition of the "Aromatic Carbolic Liquid," originated by the Russian Privy Councillor, Modest Kittary:

| | |
|---|---|
| Extract of Musk................ | 1,800 grs. |
| Phosphorized Carbolic Acid. .... | 256 " |
| Oil of Wintergreen........... .. | 1,100 " |
| Acetic Ether......... ......... | 1,550 " |
| Alcohol.... ......... ........ | 10½ lbs. |
| Distilled Water ............... | 22 " |

Melt 256 grs. of carbolic acid at a gentle heat; drop into it a small piece of phosphorus and keep in a warm place, occasionally shaking until the phosphorus is dissolved. Introduce the product into a suitable bottle, add to it the oil of wintergreen and the acetic ether and the extract of musk, and mix thoroughly. Pour the mixture into a vessel containing the alcohol, stir well, and, if the mixture is not quite clear, filter it. Next add the water in one lot and stir. If the solution does not clear up, add a little more alcohol until it becomes transparent.

The extract of musk is to be prepared in the following manner:

Upon 12 grains of musk contained in a bottle, pour 19 av. oz. of acetic ether, and shake frequently during several days. Pour off the yellow liquid, and treat the residue with fresh portions of the menstruum until the musk is exhausted of everything soluble in the ether. Then prepare from the purified musk an extract by means of alcohol.

### Disinfectant for the Air of Sick-Rooms.

THE following was recently recommended by a member of the Berlin Medical Society as an effective disinfectant, specially suitable for the air of sick-rooms:

| | |
|---|---|
| Oil of Rosemary....... | 10 parts. |
| " Lavender........ | 2.5 " |
| " Thyme........ . | 2.5 " |
| Nitric Acid........... | 30 " |

Shake well before use, then saturate a sponge with it, and expose it to the air in this condition.—*Pharm. Zeit.*

### Formation of Salt Plains.

On the eastern coast of the Caspian Sea a curious phenomenon is in progress. The Kara Bobhaz is an estuary nearly separated from the main body of the sea by a bank through which there is an inlet. The evaporation from this gulf is so great that a current continually sets in from the Caspian; and as there is no return current the water of the gulf becomes more and more saliferous, and a deposit of salt is in course of formation. In time this gulf will be cut off from the Caspian, and will then be dried up and become an extensive salt-bed.

### Phosphate Rock.

The phosphate-rock deposits of the State of South Carolina form her most important and valuable mining interest. The rock is found in the streams and ore land. The stream or river rock occurs at the bottom of various streams and rivers, and is raised by hand with tongs or by powerful steam-dredges, which furnish the bulk of the supply. A royalty of $1 per ton of crude rock is paid to the State on all rock mined in the navigable streams of the State, all such mining being done under license from the State. This royalty, amounting in 1886 to $196,089, formed an important part of the revenue. The land rock deposits are the property of individuals or companies, and pay no royalty to the State. The rock occurs at various depths, 10 feet being the limit of economical excavations, and is obtained entirely by surface mining. The economic excavation and utilization of river rock dates from about the year 1870; of land rock, 1867. The production of land rock has increased from 18,000 tons in 1868–70 to 294,000 tons; in 1886, of river rock, from 1,989 tons to 191,174 tons. The total amount of land rock produced from 1868 to 1886, inclusive, has been 1,991,000 tons; of river rock, 1,592,256 tons; or a total production of 3,583,256 tons, which, at an average selling price of $6 per ton, gives $21,499,536 as the value of the product of this industry.

IT is a bad custom when physicians' prescriptions are discontinued by a patient to store away the remnants in vials and boxes, writes a correspondent. Preparations carefully compounded for special cases and conditions may become absolutely injurious by lapse of time, and under certain circumstances some articles change their character by being kept in small quantities. There are a few simple preparations which may be kept in the house; even of these, the fewer kept the better. But of all things injudicious, amongst the most so is the giving to one person, without medical advice, the medicine prescribed for another. It would seem in some families that the members considered themselves as residuary legatees, entitled to appropriate all the remainders of the doses prescribed for a relative by a physician after his visits are discontinued.

# American Druggist

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## GRANULAR NITROGEN MONOXIDE.

BY J. U. LLOYD.

Recently considerable attention has been given the use in medicine of certain gases; among these can be named a treatment known as a compound oxygen treatment, about which perhaps little is known to the general practitioner of medicine. Those who use the method, it seems, purchase the privilege, as I understand it, of making the gas to use in their practice, and perhaps they agree not to impart the process to others. Be this as it may, considerable demand has arisen for materials that are used in the making of these gases, among them one substance under the name "nitrogen monoxide granular." This is usually included in the order with chlorate of potassium, nitrate of potassium, and black oxide of manganese, and those who desire these substances wish all or none; therefore I would suppose that in order to produce the gases a mixture of these substances and perhaps others is needed.

That this compound oxygen treatment is considerably employed throughout the country is evident from the demand for the ingredients, even though it is probable the introducer of the treatment supplies the chemicals himself as well. A short time ago a physician acquaintance of mine wrote me regarding those substances, and I answered that if he would send me a sample of the material that he had received under the name nitrogen monoxide granular, I would see if it could be supplied from the general drug market. In return I received about half a pound of a granular powder which, upon examination, proved to be granular nitrate of ammonium, and if this is the substance that is being generally supplied under this name, it will be seen that probably one of the gases employed in the compound oxygen treatment is the well known laughing gas. It is not my object to assert that under all conditions nitrate of ammonium is known to these parties as granular nitrogen monoxide; neither do I attempt to prove or disprove the theory of those who use this gas treatment under the name compound oxygen. The association of substances that I have named would indicate that, while not an individual chemical compound, the product of the combination may be a mixture of oxygen and laughing gas, and it is not improbable that in time to come such substances will receive more attention than heretofore from the medical profession. Perhaps others like myself have met this nitrogen monoxide problem, and perhaps to others this communication may be of some interest.

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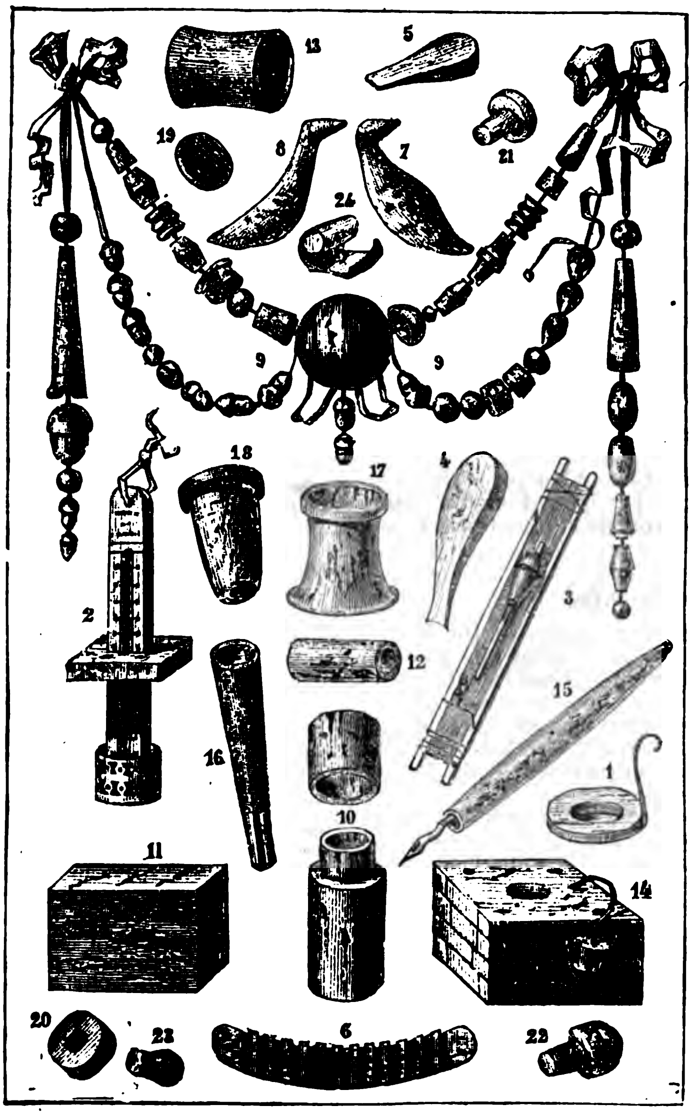
**Oleum Pini Sylvestris.**—Ol. Pini Sylvestris appears to have a rather bad effect upon the kidneys when administered to some patients. Mr. A. M. Hynes mentioned two cases (*Brit. Med. Journ.*) of elderly men who suffered from chronic bronchitis and were ordered five drops of the oil every three hours as an emulsion. Two or three days of this treatment brought on severe pain in the renal region, followed by strangury and painful micturition with bloody urine. The symptoms disappeared when the remedy was stopped.

## SOME USES OF CORK.

Though cork has been known and gathered in ancient times, and has been used for certain technical purposes ever since, yet it is only within a comparatively recent period that its almost unlimited applicability to the most varied purposes has been recognized.

It is not our intention here to give a description of the tree from which the commercial cork is obtained, nor to describe its method of collection. All of this will be found in previous issues of our journal. But an interesting article on cork, recently published in *La Nature*, has suggested to us that many of our readers might be able to obtain useful and practical hints from the uses of cork there mentioned.

Leaving out of view the employment of cork in surgery (artificial limbs), and in other scientific disciplines, we will turn to its domestic applications. Here we find it employed as bath-steps; as rolling pins for the confectioner, since it crushes almonds without absorbing their oil, as owuld be the case with wood; thin sheets of it are used as fancy labels upon wine bottles, the imputrescibility of cork renering their duration assured. The ease with which cork may be cut, turned, and worked renders it very serviceable for small objects, and as rural landscapes, and the reproduction of monuments. Next might be mentioned cork mailing boxes of a variety of shapes and sizes, for transmitting bottles by mail; bobbins for the economic transfer of silk; inkstands, familiar to us from our young days; pen-holders, thick and light, a protection against the writer's cramp; cigar holders, and a host of other objects too numerous to mention. There is probably no profession that does not make use of cork in some shape or other. From remote times, polishers of gold have used it in form of narrow strips, upon which the objects are rubbed with rouge; cork is also used as a facing for wheels which are employed in polishing crystals. In the accompanying cut there is seen (Fig. 17) a watchmaker's lens made of cork, which, owing to its lightness, does not tax the muscles of the orbit of the eye. It has also become customary to face driving pulleys with strips of cork glued upon them, to make them more adhesive. In carpenter shops, these bands now replace with advantage the caoutchouc bands upon which the band-saw runs. The old stoppers of nursing bottles are now being replaced by more sanitary stoppers made of cork, which are cheap and can frequently be changed whenever the presence of a ferment is suspected in them. Cork is also used for a great number of children's toys. For instance, it serves for fixing the wig upon doll's heads. It will scarcely be necessary to recall the corks of pop-guns and pistols, and the battledoor and shuttlecock of cork for indoor play. And so this list might be extended almost indefinitely.



Description of Objects.

1. Float for Night-Lamp. 2. Floating Thermometer (for Baths, etc.). 3. Fish Line and Dobber. 4 and 5. Cork Soles. 6. Sweat Band. 7 and 8. Cork Bird-Bodies for Ladies' Hats. 9. Forms for Trimmings. 10. Box and Cover. 11 and 12. Bottle Cases. 13. Silk Bobbin. 14. Inkstand. 15. Penholder. 16. Cigar holder. 17. Watchmaker's Lens. 18. Nipple Shield. 19 and 20. Discs. 21, 22, 23. Stoppers. 24. Cork in course of manufacture.

The manufacture of corks and of other objects made of cork-wood furnishes a considerable quantity of chips, which together with the waste derived from the collection and from condemned corks constitutes the crude material for supplying certain important industries depending upon them.

First, there is the cork powder industry. The coarser powder is employed for packing fragile objects; the finer constitute what is called in France *liégine* or *subérine*, which are used as baby-powder, in place of lycopodium or starch. Under the name of zifa powder, there has been made an insecticidal preparation composed of powdered cork mixed with phenol. Cork powder has also been used for tapers or fire-lighters, but the latter two applications have not been very successful.

The most extensive use to which cork powder has been put is Linoleum. This grand technical invention originated in Scotland and is now known everywhere. Linoleum is prepared by intimately mixing cork powder with boiled linseed oil. The resulting paste is extended upon cloth if it is desired to make carpets, or upon paper for hangings. Linoleum may be tinted, colored, embellished by designs; it may be applied to damp walls, as a solid and impenetrable substratum for oil-paintings, which are more lasting upon it than upon wood. It may also be used for making plafonds for meeting rooms, cafés, etc., and this has the advantage that it may be washed when it is blackened by dust or smoke. Like a carpet, linoleum renders the floors perfectly insonorous, and, when employed in kitchens and offices, it has the advantage of not being stained by grease.

Cork powder is used, mixed with starch, as a medium for covering steam-pipes and boilers. Mixed with milk of lime, coarse cork powder is used, in form of bricks, for the construction of party walls, the lining of damp walls.

In the cellars of breweries these bricks diminish the melting of the ice. In gunpowder works they prevent the absorption of moisture by the powder, and in case of an explosion, the damage is much less serious, owing to the lightness and friability of the material.

Cork waste, when distilled in closed vessels, furnishes a gas which is more illuminating than that obtained from coal tar, without having the sulphurous taint which injures the ornaments of our homes or offends the nostrils. During some time, the city of Nérac was thus illuminated by cork gas, but this had to be abandoned on account of the difficulty of storing the crude material, which, owing to its lightness, takes up an immense amount of space. Cork gas appears to be an excellent material for filling balloons, as it is so light and pure.

Finally, cork trimmings and refuse, when properly carbonized, furnish "cork-black," or "Spanish-black," one of the finest blacks hnown and the most indelible or resistant known to painters.

### Note on Blaud's Pills.

At a meeting of the North British branch of the Pharmaceutical Society recently held at Edinburgh, several papers were read on the preparation of Blaud's pills. In the discussion which followed, the same point was brought out which had been made some time ago by Martindale, viz., that the granulated [or the dried] sulphate of iron produced a better pill than the crystallized. Mr. Peter Boa made the following statement:

The original formula, which was ferri sulph., ʒss.; potass. carb., ʒss.; pulv. althææ, 30 gr.; tragacanth, q. s., cannot be made up without the conversion of a great part or the whole of the iron of salt into ferrous carbonate. Some medical men have the idea that the chemical reaction takes place in the stomach, and he quoted from one authority who was very positive on this point. He concluded, however, that the majority of pharmacists and medical men were of the opinion that the pill should contain ferrous carbonate, and this took him to the second part of his subject—the best method of preparing the pills. He showed that equal parts of ferrous sulphate and potassium carbonate, with tragacanth as an excipient, sometimes gave a pill so hard as to be insoluble in the stomach. This objection was partially remedied by the addition of sugar, which, however, made the pills too bulky. The granulated sulphate of iron is to be preferred to the ordinary crystallized. Apart from the fact of greater purity (a sample of the former contains 57 per cent $FeSO_4$, and of the latter 54.73 per cent), the granulated gives a pill-mass which is firmer, looks better, and keeps better than one made with crystallized.

The author then proceeded to comment upon the physical appearance of the granulated sulphate as compared with the crystallized, and showed how much more desirable a preparation the former is. He believed it to be a matter of primary importance that granulated ferrous sulphate should be used in the preparation of Blaud's pills.

The formula which he found to give constant and satisfactory results is the following:

| | | |
|---|---|---|
| Granulated Ferrous Sulphate (B.P.) | 30 | grains. |
| Potassium Carbonate (15 to 16 per cent $H_2O$) | 20 | " |
| Pulv. Sacchari Alb. | 10 | " |
| " Tragacanth | 3 | " |

Rub the iron and sugar together, then add the potash, and after trituration add the tragacanth and beat into a a mass for twelve pills. This formula approximates closely to Martindale's. Each pill contains theoretically a little over one grain of ferrous carbonate. Speaking about coating this pill, Mr. Boa remarked that they keep for a time with only trifling oxidation, they are practically tasteless, and, everything considered, he saw no reason why they should be coated.—*Chem. and Drugg.*

[Note by Ed. Am. Dr.—Experiments made by members of the National Formulary Committee have conclusively shown that an excellent pill is produced when the iron and potassium salts are in equivalent proportions. At all events there should not be an excess of potassium carbonate. The proportions: 240 grs. of cryst. sulphate of iron and 140 grs. of carbonate of potassium (containing about 81-83% $K_2CO_3$) will be found to work satisfactorily.]

### Notes on Essential Oils.*

*Oil of Anise.*—The quality of anise [presumably Russian] offered to the distillers during 1886 was very unsatisfactory, and much had to be rejected. A large amount was mixed with brownish grains, and some of it with anise deprived of oil. Heretofore the only adulteration that was practised in the case of anise was the admixture of earthy matter. Hereafter, it will be necessary to look further.

[In the last number will be found an interesting paper by Mr. C. L. Lochman, drawing attention to the presence of conium seed, in very large amount, in the Italian anise.]

The pure *anethol*, recently put in the market—differing from what was previously known under this name by its absolute freedom from the light hydrocarbon of disagreeable odor accompanying it in the original oil—is acknowledged by connoisseurs to be the finest anise essence ever obtainable.

*Oil of Valerian.*—Japan now exports an oil of valerian of excellent quality, which is found to be chemically identical with that distilled in Germany from valerian. It seems that the Japanese oil is derived from the root of *Patrinia scabiosæfolia* Link.

*Light Oil of Camphor.*—This light hydrocarbon, which is obtained in very large quantities as a by-product in the distillation of oil of camphor (for the purpose of extracting the safrol, etc.), is highly recommended as a substitute for the ordinary solvents of resins, etc., in technical operations, such as making varnishes, washing type, etc. It appears to possess one advantage which makes it of special value, namely, it requires a higher temperature for ignition than any other solvents, even higher than the oil of turpentine, as the following comparison will show:

| | Oil of Turpentine. | Light Oil of Camphor. |
|---|---|---|
| Spec. Grav. | 0.870 | 0.895–0.900 |
| Boils at | 160°C. (320° F.) | 175° C. (347° F.) |
| Takes fire at | 37.7° C. (93° F.) | 44.5° C. (112° F.) |

(barometer at 763 Mm.

Besides the light oil, a heavy camphor oil hydro-carbon is now also obtained. This has a spec. grav. of 0.960-0.970, possesses a green color, and boils at between 240°-270° C. (464°-518° F.).

*Oil of Cinnamon* (*Cassia*).—In spite of the very low price of this oil, adulterations are occasionally practised. Schimmel & Co. give the following hints for their detection. A reliable criterion of the character of the oil is the specific gravity, which should be at least 1.068 at 15° C. (59° F.). There is no suitable adulterant which does not possess a lower specific gravity. Hence, if the oil shows a lower gravity than 1.068, it should be regarded as spurious. Schimmel & Co. find it impracticable to describe in detail their method of separating other oils, but fractional distillation probably constitutes one of the main operations, combined with the solvent action of alcohol of different strengths. In some oil of cassia recently examined, and which had a spec. grav. of only 1.029, they found about 30% of oil of cedar wood (the spec. grav. of which is only 0.945).

*Oil of Citronella.*—Some twelve years ago, the annual production of this oil amounted to a few thousand ounces. In 1881, it has risen to 1,760,677 oz., and in 1886 to 6,461,-278 oz. As a result, the price in Ceylon has fallen from 3 rupees per bottle of 22 oz. to 1 rupee, leaving no more profit to the producer. A large portion of the oil is exported to New York in iron drums holding several hundred pounds each. Formerly it was packed in old wine bottles, but this has been found too wasteful and costly.

The German Consul at Colombo, Mr. Freudenberg, reports that citronella oil is now produced almost exclusively in the southern provinces of Ceylon, partly by wealthy natives who possess large plantations and partly by poor people who cultivate small pieces of ground only. The former distil the oil in regular stills, by means of steam; the poor natives boil their grass [*Andropogon Nardus* L.] in small kettles, and construct a primitive still with earthen vessel. Of course, they only produce a few flasks, which they sell to agents of European houses. One plantation, viz., that of "Winter," is in European hands, and the product of this has an especially good reputation. Formerly the oil was also produced at Gykianekande, between Galle and Colombo, by Foulkes & Knight (the oil was known in trade by the mark F. & K.), but at present it does no longer pay the proprietors to produce it.

Citronella oil is distilled almost throughout the whole year, the principal periods being December-January, March-April, and July-August. Good plantations yield three crops at about the times mentioned. A well-kept plantation yields thrice a year 24 bottles per acre, making a total of about 90 lbs. per acre; a poor one only 18 bottles twice a year. The greatest drawback in the manufacture is the want of fire-wood, and besides, the price of bottles has advanced considerably. Some years ago, oil of citronella was strongly adulterated with petroleum, but as this was readily detected on taking the spec. grav. (or treating with alcohol), the natives have given up the experiment.

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* Circular of Schimmel & Co., of Leipzig, April, 1886.

Of the quantity exported in 1886, England received 3,623,701 oz. and the United States 2,585,136 oz.; the other countries only insignificant portions.

*Oil of Coriander* has been distilled in very large quantities. Its use in the manufacture of liquors [elixirs] and perfumery is constantly increasing.

*Oil of Elemi* is being produced in larger amount. Being yet a new article, it is not as well known as it deserves. But it will undoubtedly find large consumption in perfumery.

*Oil of Citrus Species.*—Heretofore only a few Italian houses had been in the habit of carrying in stock and quoting, not only pure prime oils, such as were designated "uso profumeria" (for perfumers' use), but also an inferior, adulterated grade, designated as "uso drogueria" (for druggists' use). This practice is now being imitated by others. It would appear proper to take steps looking towards an abandonment of this practice, which is calculated to injure the reputation of the drug trade in general.

*Oil Lemon.*—The result of the last crop in Sicily has been very favorable. The production of oil of lemon in Calabria is being extended more and more every year, a fact which will probably make itself felt in the course of time in the market price of the oil.

*Oil of Mandarin Orange*, as usual, is likely to be very scarce. Those who require this brand should send in their orders at once.

*Oil of Bitter Orange.*—Owing to the high price during recent years, greater attention has been paid to this, and the stock on hand is now sufficient for the supply. Purchasers should not be surprised over the large differences in quotation by various houses, since it is easy for the unscrupulous dealers to make a product at any desired price by mixing with oil of sweet orange (oil Portugal).

*Oil Eucalyptus.*—The price of oil of *Eucalyptus globulus* suffers from overproduction, one factor contributing to this being the introduction of oil distilled in California. The Australian, Californian, and African oil contain abundant quantities of eucalyptol, but the oil obtained from *Eucalyptus amygdalina* contains none at all. This oil, and that obtained from *Eucalyptus dumosa* are the only ones which have so far been put on the market from Australia, besides the oil from *E. globulus.*

A compound prepared by Dr. Schmelz, of Nizza, and termed by him *Eulyptol*, has gained some notoriety in France. It is composed of salicylic acid, 6 parts; carbolic acid, 1 part; oil of eucalyptus, 1 part. According to one reporter, the carbolic acid is said to be undistinguishable by reagents in this mixture (?). It has a strongly aromatic odor and a sharp, hot taste. It is almost insoluble in water, easily soluble in absolute alcohol, ether, and chloroform; a mixture of equal parts of alcohol and glycerin; also in water of ammonia and solutions of alkalies. As is natural from its composition, it is an antiseptic and antifermentative.

*Oils of Pine-needles* are being gradually introduced in this country for similar purposes for which they have long been used in Europe, that is, for ozonizing the air of sick-rooms, bed-chambers, etc., for inhalations or sprays in certain throat or lung troubles, for disinfecting in general, and the finer qualities for their refreshing, agreeable odor, when used either alone, in form of spray, or mixed with other odorous substances.

After some-years' experience, it turns out that the oil distilled from the needles of Pinus Picea (silver-fir of Europe) has found the most universal and permanent favor for perfumery purposes, owing to its fine, refreshing odor. Formerly it was thought that the oil of *Pinus Pumilio* was the best, but this has an odor rather recalling that of juniper, which requires to be modified by combining the oil with other odors. Very little attention has so far been paid to the Siberian oil of pine-needles, from *Larix sibirica* Ledebour, which may be had in any quantity. This has a very strong, characteristic odor, and may be recommended for all purposes for which the oil of Pinus Picea is too expensive.

[We might add that the regular oil of pine-needles, which has been employed in medical practice for many years, is that obtained from *Pinus sylvestris*, and is quite cheap. The above-named varieties may, of course, be used for the same purposes, but some of them are rather expensive.]

(To be continued.)

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**Nitrite of Amyl as an Antidote in Cocaine Poisoning.**—The use of nitrite of amyl as an antidote in cases of poisoning by cocaine is recommended in the *Lancet* (p. 587), for relieving the cerebral anæmia, and that of bromide of potassium and the application of cold for the convulsions, which appear to be the main cause of death in fatal cases.—*Lancet.*

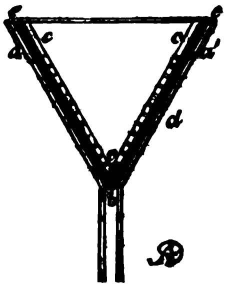
## A NEW FUNNEL.

The funnel here illustrated has the advantage that it may be used even in a dark place for filling bottles or flasks without their running over, provided only that the neck of the bottles are of such a size that the rubber ring at *a* will make a tight fit. While liquid is running into the flask from the funnel, the confined air will be able to escape only through the inner tube *dd*, at the upper end of which a whistle is attached, which will sound as long as air escapes, that is, until the flask is full. As soon as this is the case, it is only necessary to press with the thumb upon the lever *c*, when the whole tube, with its rubber attachment *b*, will be raised up so as to close the orifice of the funnel. The latter may then be lifted off, though still containing liquid, without the risk of any being spilled, and may be inserted into another flask, and so on.

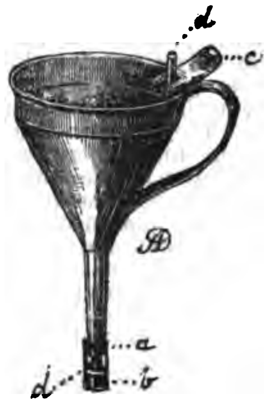
## ASBESTOS FILTER.

Asbestos is an excellent filtering medium for acids, caustic alkalies, and other liquids which exert a more or less energetic action upon the usual kinds of filters. But in its natural or crude condition it is unsuitable for use. According to Wolfgang Venerans, it is best prepared and purified in the following manner.

Rub commercial asbestos, of as pure and evenly-fibered a grade as possible, through a No. 10 sieve (that is, one having 10 meshes to the linear inch), and transfer the siftings to a finer sieve (No. 25 or 30), upon which a stream of water is made to play. At first the water will run off milky, and the washing must be continued until the water runs off clear. The asbestos is now boiled, in a porcelain or glass-vessel, during half an hour with a mixture of 1 part of strong hydrochloric acid and 4 parts of water, the mass then transferred upon a perforated platinum disk in a glass funnel, and washed with water until the washings no longer afford a reaction for hydrochloric acid. Next, it is heated in a platinum crucible or capsule over the blast-lamp, and afterwards, when moderately cool, transferred to well-stoppered glass vessels.



Asbestos filter.



A new funnel.

Asbestos prepared in this manner filters rapidly and clear. By making a magma with water and pouring it upon the perforated platinum disks or filters devised by Gooch, a very superior filtering medium is obtained.

If it is desired to make a conical asbestus filter, the method of Grundl, proposed some 20 years ago, may be adopted. A magma is made with the comminuted asbestus and water, which is poured into a suitable glass funnel, the neck of which is closed. A hollow cone, made of fine wire-gauze, is then slowly pushed into the glass funnel, so that the asbestos will gradually be compelled to form a layer between the cone, which must be somewhat smaller than the funnel, and the latter. The liquid mass which remains behind is poured out and the hollow cone carefully removed, when the filter is ready.

Another method of making conical asbestos filters is that of Karl Trobach. The asbestus is here held in place by means of a perforated plate, *c c c*, fitted into the inside. In fact, the funnel may be filled in this case precisely as in the before-mentioned method. But as the plate is intended to remain, it is made of acid-proof material. It is held in place by a clamp, *e e*, passing over the edge of a funnel.—After Krueger, *Die Filter.*

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**Composition for Removing Ink.**—A newly patented composition for the removal and erasure of writing-inks from paper, cloth, and all other substances, without injury to the substance, is made as follows: To 2 quarts of water, which has been previously boiled and cooled, add 4 oz. of citric acid, and after the acid has been dissolved add 6 to 8 oz. of a saturated solution of borax and 12 oz. of chlorinated lime. Place the whole in a stoppered quart bottle, shake well occasionally in the course of several hours, then allow to settle and decant the clear liquid.

### Some Common Facts in Regard to Strophanthus.*

The strophanthus is a plant that climbs to the top of the forest trees, where it blooms and then yields two large pods about ten inches long, that grow at right angles to the stem. If not gathered soon enough they expand and liberate the seed just the size of an oat, but this seed has a shaft and a plume in form like an arrow that is blown from a tube, so that it would at once occur to the natives to be guided by the Great Spirit to the use of this seed. If allowed to burst, the seed is carried by the wind for hundreds of miles. The natives climb the trees to secure the pods before they burst, and they bind them into bands about thirty inches long with a very strong fibrous bark. This has the effect of preventing the pods expanding and the seed escaping, for then the pods would be useless, as it is at present regarded by tribes for thousands of miles as the equivalent of money, these tribes depending for their food and for attack and defense on these arrows. The natives who hold the rights in the country where the two best varieties grow, viz., the S. Kombé and S. hispidus, command the highest price, and the test for strength (when the purchaser has a doubt) consists in this that he rubs a seed on to a pointed stick and pierces the skin of a fowl. If it at once falls over, then he knows the poison is active, and he bleeds the fowl and cuts out the wound to preserve the former for food.

The seed is pounded up into an oily mass, and if too liquid it is mixed with clay, and placed just behind the barb of the arrow to make it adhere better during flight. I have found thorns tied into the shaft, and to prove how virulent this poison is, a friend loaned me some arrows to show at the Medical Congress at Brighton in 1886, and one of these thorns just pierced the finger of the gentleman who unpacked the parcel. Although he at once sucked the wound, he felt the pain go up his arm to the shoulder, but the effect passed off during the night. These arrows had been 16 years in this country.

The natives who collect ivory go out in parties, and if they can only pierce the skin of a large tusker elephant with these poisoned arrows they follow him up at some distance until he becomes, as they call it, drunk and insensible. They remain quiet for fear of disturbing him and making him run away. In a short time the poison stops the action of the heart, and he dies. They are careful how they use the meat. When hunting game for food with their poisoned arrows they get to the animal as quickly as possible and stick it, to cause a flow of blood, and they also cut out the meat near the wounded parts and bury it. They do not then suffer any ill effects from partaking of it. There is as yet no antidote discovered for this poison; the best plan is to suck the wound, but now that we are aware of the strength of this arrow poison there need be no longer any surprise at the loss of so many valuable lives in Africa when missionaries have been trying to civilize the native tribes. I have made a collection of strophanthus plants and seeds, and have about sixteen different varieties, some coming from the East Indies, some coming from the East Coast of Africa, others from the West Coast, but those that are more intensely bitter than any come from the centre of Africa. Up to the present time no plan has been resorted to but tasting both the seed and the extract to ascertain its strength. Some systems are much more susceptible to its action than others. When stripping the seeds from the pods, the natives dig holes in the ground and bury the barb or plume from the seed, because they find it flies about and causes inflamed eyes. Some of our large druggists have men who are at once affected with pain in the side and heart if they go into the room where the tincture is being prepared. The action of examining the pods and seeds affects some people, and many experts who are in the habit of tasting nearly every drug draw a line at strophanthus. On the other hand, the workers in the laboratories when tasting the tincture soon became accustomed to it, and so far more strophanthus has passed through my hands than any one else, and I have experienced no ill effects. Naturally, I use every precaution.

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**Carbolate of Mercury.**—Brandt, a pharmacist in Kieff, has prepared this remedy by precipitating a very dilute solution of bichloride of mercury with a concentrated alcoholic solution of carbolate of potassium. The yellowish precipitate having been frequently agitated with the liquid for 24 hours, assumed a whitish appearance and was then filtered and washed with distilled water until the wash-water showed no trace of chloride. It was then transferred to a fresh filter-paper and dried under cover. The product is nearly white, tasteless, and amorphous, scarcely soluble in cold, but readily soluble in boiling hydrochloric acid.

In doses of ½ grain, 3 to 4 times daily, it is used by Karl Shadek, of Kieff, as a remedy in syphilis.—*Lancet.*

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* We are indebted for the above interesting account to its author, Mr. Thomas Christy, of London, and to the *Macklisfield Advertiser*, in which it was first published.

### Comparative Solubility of Pill Coatings.

A medical man having expressed his opinion that a gelatin coating was not a desirable one, because after a time the gelatin altered in composition and became horny and insoluble, Mr. Thomas Thompson placed a two-year-old pill into water at 95° Fahr., and the coating dissolved in a few seconds. The objection that the preliminary solution of gelatin by heat renders it insoluble is groundless, because the gelatin is heated in the course of manufacture, and is yet perfectly soluble. The author compared the gelatin coating of a pill with a sheet of ordinary gelatin and another sheet made from the coating solution, and found no difference in their solubility. These experiments led to the inquiry which was the basis of this communication. Samples of the various kinds of coated pills—pearl, sugar, gelatin, tolu, and keratin—were examined, also aloes and iron pills in sugar, pearl, gelatin, and tolu coating.

The plan adopted with the aloes and iron pills was to drop one each into a weak solution of red prussiate of potash at a temperature of 95° Fahr. (about the ordinary temperature of the body), stirring once, and noting which gave the blue precipitate first, the one which so behaved being considered the most soluble. The pills were afterward allowed to digest until they were completely disintegrated. In order to make the test in every way a fair one, the needle-hole in the gelatin-coated pill was closed. The following are the results:

*Sugar.*—Showed precipitate in six minutes. *Disintegrated* in one hour and forty minutes.

*Pearl* (*a*).—In twenty-three minutes, after having been kept at a temperature of 100° Fahr. for eighteen minutes. *Disintegrated* in 4½ hours.

*Pearl* (*b*).—Outer coating fell away after keeping at a temperature of 100° Fahr. for twenty-five minutes and showed precipitate after two hours and fifteen minutes. *Disintegrated* in five hours.

*Pearl* (*c*).—In three hours and fifty minutes. Did not not disintegrate after standing all night.

*Tolu.*—In one hour and three-quarters the precipitate was only shown at points, as if the moisture and heat had caused the pill to swell and burst the coating. *Disintegration* of fresh pills took three or four hours.

*Gelatin* (*a*). In one minute and a half. *Disintegrated* in thirty minutes.

*Gelatin* (*b*).—In four minutes. *Disintegrated* in one hour and a quarter.

The observations with the pearl-coated pill led to the belief that it has two coatings, and the time occupied for disintegration points to the conclusion that, in order to have the pills in a proper condition for pearl coating, they must be made as hard as it is possible to make them, which in the case of gelatin coating is not necessary.

The author agreed with Mr. Gilmour that chemists should not encourage the sale of factory-made pills, not only for the reasons before stated, but also for his own benefit in securing what middle profit there may be. Moreover, by buying his pills the pharmacist deprives the rising degeneration of a most important and practical part of their education, and he is unable to give that security to the public regarding the quality of his preparations which he is able to do when he makes them himself. The gelatin coating is applicable to all B.P. pills. There are some, such as pil. coloc. co., lead and opium, etc., which present a dull appearance, but with these exceptions the coating remains intact, and, unlike pearl coating, does not show any pitting or discoloration.

The keratin coating is of more recent introduction, and is made by removing from horn shavings all that is soluble in pepsin and hydrochloric acid; the residue is dissolved in solution of ammonia and evaporated until only a trace of ammonia is left. The coating is said to be insoluble in the stomach. Some keratin-coated aloes and iron pills were placed in the red prussiate solution and the blue precipitate was given in eighteen minutes, total disintegration took place in three hours; as in the tolu-coated pill, the moisture and temperature appeared to have the effect of bursting the coating and liberating the contents of the pill. From this one may almost conclude that the same action would occur when such pills are taken into the stomach.

The foregoing experiments were repeated with an acidulated solution of pepsin, and the results were practically the same.—*Chemist and Druggist.*

◆

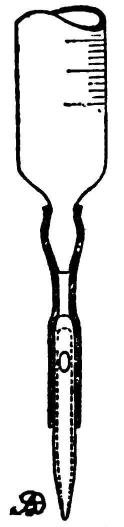
**Cultivation of Foreign Plants in Switzerland.**—The Government of the Swiss canton of Vaud are taking steps for the establishment of two or three botanical gardens on the St. Bernard, the Simplon, and in Zermatt. The Jardin Alpin of Geneva last year established a station on the Tête du Mouton at an altitude of 2,300 metres. Plants from the Pyrenees, the Himalayas, the Caucasus, Siberia, etc., are successfully cultivated at this station, and a complete laboratory for the propagation of seed and the observation of the habits of plants and the changes which they may undergo consequent upon the change of habitat will be added to the station.

## A NEW UREOMETER.

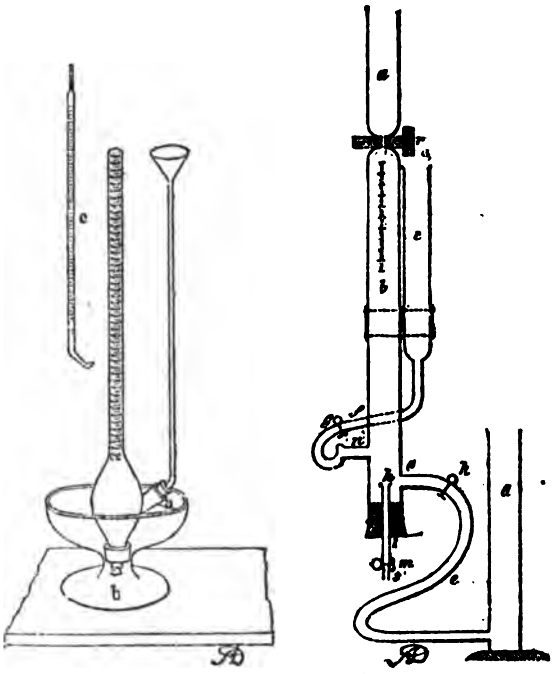
Georges Frutiger proposes the apparatus here illustrated for the assay of urea or other nitrogen compounds decomposable by means of hypobromite.

The chief portion of the apparatus is the burette *b*, consisting of two portions, the upper one, an open funnel tube, being connected with the other part by a narrow neck provided with faucet *r*. At the lower end of the burette are two lateral tubes attached, one of them, at *n*, being connected by means of rubber tubing with a separate tube *c*, adjustable in height by a feathering clamp, and the other one at *o*, similarly connected with a cylinder *d*, destined to hold a quantity of mercury. The lower orifice of the burette is closed with a rubber-cork containing the tube *k s*. At *m*, *g*, and *h*, pinch-cocks are attached.

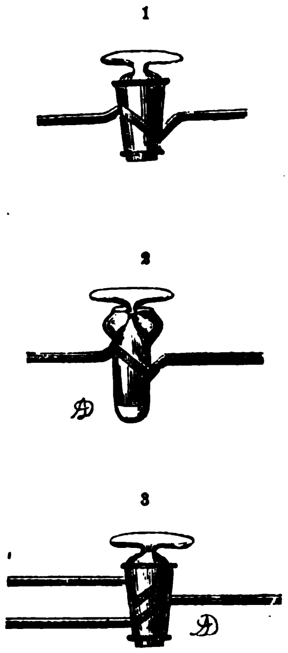
The apparatus is used in the following manner. Water is poured into *c*, and the pinchcock *g* opened so that some of the water may flow into the burette; *g* is then closed again and the cock *m* opened, to allow the excess of water to run out, care being taken that enough remains to keep the tube *k s* filled. [The subsequent entrance of mercury will certainly displace the water in this tube, unless the upper orifice at *k* is considerably contracted.—Ed. Am. Drug.] Next, the main part of the burette is filled with mercury by raising *d* (previously filled with the metal) and opening the stop-cocks *h* and *r*. When the tube *b* is completely full, and all air-bubbles or water on the surface of the mercury have been removed, 1 cubic centimeter of urine (or an equivalent amount of other nitrogenized liquid) is poured into the upper tube *a*, and allowed to enter the lower tube, the mercury cylinder *d* having previously been replaced on the table. Next some water is made to enter the burette in the same manner, and finally a sufficient quantity of the hypobromite solution (solution of bromine in caustic alkali). The nitrogenized substance, on decomposition, affords an amount of nitrogen gas, which is measured under the ordinary precautions and is found, by calculation, to correspond to a certain amount of the nitrogenized substance. [On an average, 1 C.c. of nitrogen corresponds to 0.0027 Gm. of urea.] The apparatus here described is made for sale by S. C. Pensold, of Geneva.—*Chem. Centralb.*, No. 1.



Burette nozzle.



Frutiger ureometer.



Glass stop-cocks.

### Boring Holes Through Glass.

A writer in a recent number of the *Revue chronométrique* states that holes may be bored through glass by means of a rapidly rotating steel borer kept moist with turpentine "previously mixed with oxalic acid or the juice of onions." A writer in the *Zeitschrift f. Instrumentenkunde* quite properly declares these last-named additions to be immaterial. He adds: "The object may be accomplished readily by using a borer tempered at as low a temperature as possible (so as to be as hard as glass), and rotating it only slowly, taking particular care that it is kept constantly moist with oil of turpentine. Glass may also be bored quite readily with the aid of petroleum, though this does not possess the power of cooling the tool in the same degree as oil of turpentine. In order to prevent the chipping of the edges at the commencement of boring, it is preferable to make a preliminary hole with a glass-hard three-cornered steel-point. This hole should be a trifle larger than that which is to be bored through the glass. The latter may then be drilled as described before. In order to prevent the glass at the opposite side from breaking or chipping, when the borer begins to pass through, a piece of glass must be cemented against the other side."

## IMPROVED GLASS STOP-COCKS.

In the case of ordinary stop-cocks, it requires a revolution through nearly 180 degrees to bring about a perfect closure. At the same time, if this is often repeated, the body of the stop-cock will grind itself very gradually further in, or is apt to become leaky after a while. Messrs. Greiner and Friedrichs, of Stützerbach, Germany, have put on the market a new kind of stop-cock which is claimed to be free from these drawbacks. It is pierced in an oblique manner, and the corresponding tubes are attached at different heights. As will be seen from the cuts, it requires but a slight turn to close or open the stop-cock. When it is desired to make the latter absolutely tight, the neck into which the stopper fits is expanded in the shape of a bowl (Fig. 2), which is to be filled with mercury. Two-way cocks made on this principle are also made. One of them is shown in Fig. 3.

## A NEW BURETTE NOZZLE.

Many chemists are in the habit of closing burettes by means of a small piece of glass-rod pushed into the rubber tubing slipped over the orifice.

W. Leybold has recently published a simple method, by means of which the function of this glass-rod may be combined with the glass nozzle. It is only necessary to close the latter by fusion at its inner end, and to provide it with a small lateral hole about one centimeter below the closed end. This hole is best made by heating the tube over a finely pointed flame and blowing it out. By means of a file, it may be easily rendered smooth and even on the surface.

To know at which side the hole is situated may not be always as easy as the author states. He assumes that, when it is once inserted in the proper position, the operator will easily find the place with his finger. [We would suggest that a small pellet of glass be fused upon the exposed portion of the nozzle exactly in a line, perpendicularly, with the hole. In this way, the position of the latter would be always easily known.]—After *Zeitsch. f. Anal. Chem.*, 1887, 230.

### Substitutes for Gum Arabic.

Mr. Charles Christy, some time ago, reported that recently some remarkable specimens of gums had been received from India, but up to the present time there was no gum which has come under his notice which would supersede gum arabic, at least that from the Soudan, known in commerce under the name of "Turkey sorts." This sold, before the breaking out of the Soudan war, with difficulty at 35s. to 40s. a hundredweight, but at the present moment it was worth £10 to £11 [at this time, May 15th, £15.0.—Ed. Am. Dr.]. What was wanted was some gum to replace it, and it seemed a very strange thing that they had not been able to find one. What was wanted was a sweet gum, which could be used medicinally as a mucilage. The gums hitherto brought forward were more or less of a bitter nature, containing a large amount of tannin, and the consequence was, when used for dyeing purposes, if the dye contained any mixture of iron, it turned black. He hoped the gentlemen visiting England from the different colonies would bear this in mind. They were getting gums from Australia, but none of them that he knew of were of the sweet character, which could be used in pharmacy. The nearest thing to it was the produce of Senegal.

### Notes on Commercial Drugs and Chemicals.

(From the trade circular of Gehe & Co., of Dresden, for April, 1887.)

*Aconitine.*—Beside its ordinary uses, this alkaloid has been found to be an excellent remedy in syphilitic headache. Leroy observed its good effects in cases where even iodide of potassium and quinine failed to give relief.

*Aluminium.*—In consequence of the great reduction in price which metallic aluminium has recently experienced, its employment has very materially increased. The "Chemische Fabrik auf Actien, Berlin," has put on the market three different kinds of aluminium-bronze, viz.: No. 1., consisting of about 10 parts aluminium and 90 parts copper, having the color of pure gold; No. II., containing about 5 parts of aluminium and 95 of copper, looking like 14-carat gold; and No. III., consisting of about 2½ parts of aluminium with silicium and copper, which has the appearance of hard brass. These alloys are easily fusible, and resist the action of the atmosphere. They may be polished, are ductile, or may be rolled to any extent, and may therefore be used as additions to, or substitutes for other bronzes.

In view of the increasing use of aluminium, Gehe & Co. offer some practical hints regarding the soldering of aluminium. The solder is made by melting together 5 parts of zinc, 2 parts tin, and 1 part lead, and this alloy is rolled out to a thin sheet. The aluminium to be soldered must be scraped or rubbed clean, and then coated with paraffin or some other similar body. A piece of the soldering alloy is then placed upon both surfaces, and the place heated. The paraffin melts first; on further heating, the solder melts, and after cooling this will be found permanently united with the aluminium. The two coated surfaces are then soldered together in the usual manner. When aluminium is to be soldered together with other metals, it is only necessary to coat it first with the above alloy.

This method is based on the fact that aluminium, when exposed to the air, very rapidly becomes covered with a scarcely visible layer of oxide (alumina), which prevents further oxidation, and has caused the supposition that aluminium is not affected by exposure to air. The coating of alumina is an insurmountable barrier to the solder, which can be removed only by coating the aluminium with paraffin immediately after scraping it clean.

*Amber* in the finest quality, so-called "coral-fracture" (Korallenbruch), is at present obtainable only with great difficulty and at high price. The chief producers at the coast of the Baltic have made an agreement not to put this or similar qualities of amber on the market in the future, so as to cut off the supplies from the Viennese manufacturers of *artificial* large amber-pieces.

*Antifebrin.*—Gehe & Co. confirm the fact that the use of this antipyretic is finding extensive employment. According to the published reports of the discoverers of its antipyretic action (Drs. Cahn and Hepp), it is readily borne both by the stomach and intestines. Vomiting was never observed, nor were the kidneys or urinary organs irritated. Exanthema occurred only sporadically. What change the drug (acetanilide is the proper *chemical* appellation) undergoes in the organism is not yet sufficiently known. Yet the discoverers believe, from experiments thus far made, that it is partially decomposed into aniline and acetic acid, and that the former is the real antipyretic.

Of homologous substances, *benzanilide* ($C_6H_5NHCOC_6H_5$) has likewise antipyretic properties. The salicylanilide ($C_6H_5NHCOC_6H_4OH$), on the other hand, has only feeble power in this direction.

*Antipyrin.*—The consumption of this best-known of all antipyretics has somewhat diminished, owing no doubt both to the greatly reduced cost of quinine, and to the successful introduction of its new rival, antifebrin, which costs about 95% less.

[Antipyrin is made, under the patent of Dr. Knorr, only by one firm, and the price is therefore regulated without regard to competition. Antifebrin, on the other hand, stands on a different ground. In the first place, it has long been known to chemists under the name of acetanilide, and can easily be prepared by any one who wants to do so. In the second place, the name antifebrin, which has been given to it by Drs. Cahn and Hepp, is not protected as a trade-mark, so far as we know, having been proposed by the discoverers of the antipyretic effects of the drug without any restrictions or proprietary reservation. Hence there are several firms engaged in the manufacture of the article, though one of them apparently claims a sort of monopoly in the matter.—Ed. Am. Dr.]

*Arbutin* is in considerable demand. Gehe & Co. have been informed by competent authority that it is employed with good success in Bright's disease, being given in large doses. Reports on the subject will shortly appear in the medical press.

*Atropine Santonate.*—This new salt of atropine is now used in ophthalmic practice on account of the stability of its aqueous solution. The santonic acid is reported to prevent the development of fungi.

*Balata.*—On the subject of balata, the dried milky juice of *Mimusops globosa* Gærtner, an interesting report has been furnished by the government botanist and director of the botanical garden at Demerara, Mr. G. S. Jenman. According to this author, the habitat of the tree, which reaches an altitude of 120 feet, extends from Jamaica, Trinidad, and Venezuela to French Guiana. It is said to be particularly abundant about the river Berbice and eastwards to Dutch Guaiana, where several thousand acres of ground have recently been acquired by an American firm for the purpose of obtaining the juice of the trees. The forests are reported to be inexhaustible. Hence collectors of balata pay no attention, at present at least, to the preservation of the valuable trees, but the latter are simply hewn down or tapped without care. Only after the forests in the immediate vicinity will have been destroyed in this manner, will there be a change in this system.

*Belladonna* leaves have been very abundant, which is accounted for by the fact that belladonna *root* is in active demand, and searched for everywhere. One consequence of this will be that both the root (and eventually also the leaves), as well as atropine, will be less abundantly obtainable in the future.

*Bismuth.*—The Australian production does not appear to have affected the market so far, and has probably been only moderate.

*Bismuth Subnitrate.*—Gehe & Co. confirm what we have experienced and reported upon ourselves some time ago, that certain brands of subnitrate of bismuth made in Europe (we have examined only some French makes) are quite impure. This is particularly the case with the bismuth troches made in France and Italy, which Gehe & Co. have sometimes found to be adulterated with phosphate of calcium to the amount of 50%, not counting other impurities often existing in the best reputed brands.

Some time ago a demand has arisen for a "subnitrate of bismuth precipitated with nitrate of sodium." This preparation is asserted by some medical authorities to have a much more decided action than the officinal, which may be due to its extremely fine division. The microscopic appearance of this compound is entirely different from that of the officinal. A crystalline structure is visible only under a lens magnifying 400 diameters.

*Cannabinon.*—Since the reports of Buchwald and Pusinelli regarding symptoms of poisoning produced by a dose of 0.2 Gm. (ab. 4 grains) of this substance prepared from *cannabis indica*, the demand for it has materially declined.

*Carbolic Acid.*—The unusually active demand for this substance, the causes of which have long ago been made known to our readers, still continues, and is likely to bring about a temporary stoppage of the supply, as it is impossible to increase the production at will during the summer months.

*Cinchona Bark.*—In spite of new antipyretics, quinine and manufacturer's bark have lost nothing of their great importance. A natural result of the constant recession of the price of bark during the last ten years has been to greatly increase the consumption. This has been the case particularly in the United States, which still continue to absorb constantly increasing quantities of quinine from Europe.

The immense exports of hark from Ceylon have naturally been the cause of the constant decline in value. To realize this, it is only necessary to examine the following statistics of export of bark from Ceylon:

| Oct. 1 to Sept. 30. | Pounds. | Oct. 1 to Sept. 30. | Pounds. |
|---|---|---|---|
| 1876 to 1877 | 56,589 | 1881 to 1882 | 3,099,895 |
| 1877 to 1878 | 178,497 | 1882 to 1883 | 6,925,595 |
| 1878 to 1879 | 373,511 | 1883 to 1884 | 11,492,947 |
| 1879 to 1880 | 1,208,518 | 1884 to 1885 | 11,678,300 |
| 1880 to 1881 | 1,207,720 | 1885 to 1886 | 15,364,913 |

The first months of the new season appeared to show that the last figure would not be exceeded in the future, and in consequence thereof an advance was a natural sequel. But when it appeared later on that the rate of export did not show any diminution, the price declined again during March, an additional cause being the sale of 28,000 ounces of quinine at auction, in London. It is, however, reported that the plantations upon Ceylon have been reduced from 64,000 acres in 1883 to 48,000 acres in 1885, and that, therefore, the export will diminish in the future. On the other hand, Java does not appear to contract, but rather to expand its cultivation, and the same may be said of the East India barks (from the Nilgiris, Wynaad, and Darjeeling). South American barks are also again arriving in the market in larger amounts, and this will probably be the case much more in the future, as the cultivation of cinchonas in Bolivia promises to be quite successful.

*Coca Leaves.*—The supplies were extraordinarily large up to the winter months, when Bolivia leaves, of fine, green color, took a considerable advance. The same, though not to such an extent, took place with the Peruvian and Truxillo leaves, which are mostly purchased by manufacturers of cocaine. During the last few months, the importation of crude cocaine manufactured in Peru has assumed constantly increasing dimensions, so that it has become already almost impossible to compete with the Peruvian manufacturers.

*Cocaine.*—A large quantity of the cocaine of the market is prepared from the crude alkaloid imported from South America. There is not enough profit in extracting the alkaloid from the leaves in Europe [or in the U. S.]. It is not at all improbable that an artificial substance will be discovered as a substitute for cocaine, having all its anæsthetic properties, as it is already known with certainty that cocaine is some derivative of benzoyl.

*Codeine.*—Contrary to the usual custom that the value of codeine rises when that of morphine declines, both of the alkaloids have lately shown a rising tendency.

The conversion of morphine into its methyl compound (or codeine) has been already effected in various manners. The best known method is that of Grimaux, who used as starting point the morphine-potassium- (or sodium-) alcoholate, treating it with iodide of methyl. Yet this process yielded only about 10 per cent of codeine, hence it was not practical. A further step was made through the synthetic investigations of Hesse, who at first regarded the artificial codeine thus produced not as identical, but only as isomeric with the natural alkaloid, though he acknowledged later on that they differed only in their rate of polarization.

Recently, codeine is made by a German manufacturer, a former attaché of the firm of Gehe & Co., by a process differing from those published. The product is absolutely pure and in handsome crystals. While Dott's process is based upon the decomposition of the morphine-alkali with chloride of methyl, the new patented process of the German manufacturer produces codeine by the action of sulpho-methylates upon alkaline solutions of morphine, and the process is also applicable to the preparation of ethyl-morphine and the higher homologues.

*Gum Arabic.*—The high price of genuine gum arabic appears to have reached its highest point in the beginning of this year. In the fall of 1886, the arrival of considerable quantities of Gezireh gum somewhat depressed the value, but the stocks of genuine Kordofan gum were subsequently so rapidly consumed that the price took a decided rebound. It is reported by reliable authority that considerable supplies of the genuine gum arabic have accumulated above Wadi-Halfa, in the mountains and the desert. Of course, the owners of this stock are anxious to get them to market as soon as possible, in order to benefit from the high prices ruling at present. Yet fresh supplies can scarcely be expected to arrive at Cairo inside of several months, because it will first be necessary to bring camels from many distant localities, for the purpose of resuming the interrupted trade. Besides, it is questionable whether capitalists can be found who will risk money in the hazardous undertaking.

*Insect-Powder Flowers.*—The Dalmatian flowers have reached an unusually high figure, chiefly owing to an active demand from the U. S. While the price at Trieste, in the beginning of last season (June, 1885), ranged between 100 and 150 florins per 100 kilos, according to quality, it is necessary now to pay 180 florins for open, 210 fl. for half-closed, and 235 fl. for genuine, wild, unexpanded flowers. On Feb. 1st, the stock had been reduced to about 29,800 kilos (against 129,600 at the same period of the preceding year), and the total quantity exported up to June, 1886, amounted to 500,400 kilos, against 465,000 in the preceding year. The Persian flowers have advanced in a similar ratio, but the supply was very limited and is almost exhausted.

*Iodine.*—At the beginning of the last quarter of 1886, it was rumored that the Chilenian Association of Manufacturers was about to be dissolved, since several members of it had found it necessary or to their advantage to seek a market for their products outside of the ring. It was also reported that the attempts to bring them back into the combination were unsuccessful. For this reason, the leaders of the "combine" reduced the price of iodine inside of a few weeks from 9 to 5¼ pence per oz., and threatened to put it down as low as 2 pence. This threat had its effect in not only bringing back the deserters, but also in absorbing the Scandinavian producers who had previously been entirely independent of the ring.

*Jaborandi* leaves have been very scarce in the past season, and it is especially difficult to find leaves of good quality and of fair alkaloidal value. Future shipments will certainly fetch higher prices.

*Macassar Oil.*—The genuine macassar oil, from the seeds of *Schleichera trifuga*, a sapindaceous tree, native of the East Indies, possesses in its home a great reputation as an efficient agent to promote the growth of hair and to remove eczematous eruptions from the skin. At one time the genuine oil was imported into Europe, but this gradually ceased, in consequence of other products being put upon the market as macassar oil, such as cocoanut oil, perfumed with the flowers of ylang (*Cananga odorata*) or of champa (*Michelia Champaca*), or compounds made in Europe, and consisting of domestic fatty oils, mixed with volatile aromatic oils and colored with alkanet. Gehe & Co. state that they have received a fresh supply of the genuine oil. This is semi-liquid at the ordinary temperature, has a yellowish-white color and a faint odor of oil of bitter almonds. It contains about 0.05 per cent of hydrocyanic acid, and possibly this may be the constituent upon which its favorable dermatic effect is based.

*Mollin.*—Under this name a new kind of soap, as a vehicle for the application of dermatologic remedies, has been introduced. It is a soft soap containing an excess of about 15 per cent of fat, and 30 per cent of glycerin. It has a dull white color, a homogeneous consistence, and may be easily and evenly distributed upon the skin. When rubbed with mercury the resulting ointment is said to have advantages over the ordinary mercurial ointment as it may be readily washed of with water. Besides, it is said to have a more intense effect. [We have mentioned this body already in a previous issue, but quote the above remarks as we have had inquiries about it.]

*Musk.*—The total amount exported from Shanghai in 1886 was 2,279 catties. Though this figure does not show a diminution of supply, it is, however, known from other facts that the musk deer is becoming more scarce every year, and its total extinction appears to be only a question of time.

*Naphtol* (*Beta*).—The demand for this body is constantly increasing. The closely allied carbonaphtolic acids (oxy-naphtolic acids) are being tested for their serviceability, and may possibly find employment in form of salts of alkalies. The sodium salt is reported to possess a decided antiseptic action.

*Opium.*—The market value of Smyrna opium has suffered a great change since the end of the last harvest. At that time, a crop of about 9,000 chests was expected, and in consequence thereof, the price has been depressed lower than had ever been known before. But when the crop of the season began to arrive at Smyrna, and it was seen to be far below the expected amount, an advance took place, which at first proceeded slowly, but soon made rapid progress. Besides, unfavorable reports were sent from the interior during January and later. In the beginning of February Yerli was rated at 105, and shortly afterwards at 115 piasters, and when the drought continued, even in March, and became so threatening that public prayers for rain were ordered to be held, and a famine was threatening, the price rose as high as 140 piasters. It is supposed that, under the most favorable circumstances (that is, if it is still possible to renew the sowing in the spring), there will only be a quarter-harvest this year. And as the crop of 1886 amounted to only 7,300 instead of the expected 9,000 chests, it is evident that no decline can be expected.

*Peptone* has recently been administered by way of suppositories. For this purpose a peptone free from salt appears to be preferable, as being less liable to irritate.

*Picric Acid* is in strong demand, particularly for the French Government, not only for the purpose of the new explosive, melinite, but also as an ingredient of a new kind of gunpowder for fire-arms.

*Quinine Sulphate.*—Gehe & Co. make some comments on the oxalate test for the purity of commercial sulphate of quinine, as they suppose that this test is likely to receive the indorsement of the permanent Pharmacopœia Commission. Sulphate of quinine, with 13 per cent of water, contains 77.44% of pure alkaloid; with 14% of water, 76.6% of alkaloid. If the sulphate of quinine is to be converted into oxalate, it is necessary to use such a quantity of oxalate of potassium as will afford enough oxalic acid to the quinine for the formation of oxalate of quinine. The last-named salt, when dry, contains 13.9% of oxalic acid (Regnault, *Rep.*, 52, 403). Hence, 2 grammes of sulphate of quinine containing 77.44% of alkaloid require 107.6 × 2 = 215.2 milligrammes (0.2152 Gm.) of oxalic acid, and if the sulphate contains 76.6% quinine, it will require 213 milligrammes of the acid. Assuming, in the most favorable case, that oxalate of potassium contains 1 molecule of water, this salt contains 39.05% of oxalic acid (Graham, *Ann. de Pharm.*, 29, 2), and in 0.5 grammes, 0.195 Gm. of oxalic acid. Consequently, if only the theoretically calculated quantity of oxalate of potassium were added to the quinine salt, it might happen—particularly if the oxalate of potassium contained more than 1 mol. of water, that a small fraction of the sulphate of quinine remains in solution undecomposed. It follows, therefore, that the quantity of oxalate of potassium will have to be increased. And there seems to be no objection to this, since oxalate of quinine is almost insoluble in a 15-per-cent solution of the oxalate of potassium.

*Saccharin*—among other things, also the bugbear and nightmare of the sugar manufacturers who have been led to believe that it will interfere with the production of cane sugar— will shortly make its appearance on the market. So far as its *medicinal* uses are concerned, it will be employed in diabetes, polysarcia, and affections of the stomach, intestines, and bladder, when the use of sugar would be objectionable. Also as a corrigent of the bitter taste of alkaloids, etc. According to Fahlberg and List, it has the following solubilities (we have calculated their figures so as to show the quantity of solvent required to dissolve 1 part of saccharin):

1 part of saccharin is soluble in:
(fractions being omitted.)

| | | | |
|---|---|---|---|
| Water | 333 parts. | Alcohol 60% | 35 parts. |
| Alcohol 10% | 185 " | " 70% | 32 " |
| " 20% | 135 " | " 80% | 31 " |
| " 30% | 68 " | " 90% | 32 " |
| " 40% | 50 " | " 100% | 33 " |
| " 50% | 36 " | | |

The solubility of saccharin may be increased at will by the addition of carbonates of alkalies or alkaline earths. For every five parts of saccharin 2 parts of carbonate of sodium may be used.

*Senna.*—Though the so-called Alexandrian senna reached Cairo, by way of Assuan, in satisfactory quantities, yet its quality was mostly below the standard. Genuine Senaar senna will remain inaccessible until after the re-opening of the trade with the Soudan.

*Salicylic Acid.*—The old question whether salicylic acid is injurious to man, when taken internally as a constituent of articles of food or drink to which it had been added for the purpose of preservation, appears to be as far from final decision as ever. Some authorities declare it poisonous even in comparatively small doses; others assert that it has been, and may be taken in doses of as much as ½ gramme per day, for many months, without producing any untoward effects. Nevertheless, a commission of Bavarian sanitary experts some time ago reported against its use, and accordingly its employment as a preservative of food or drink has been forbidden in Bavaria. And a similar commission, appointed by the Paris Académie de Médecine, has made a report, in which the same conclusions are arrived at. Whether this will be followed by an interdict of salicylic acid is not yet known. But brewers, as well as vintners, have made energetic protests against any action in this direction, claiming that the matter has not yet been sufficiently studied. The export of salicylic acid from Germany amounted to 158,600 kilos in 1886 against 128,600 in 1885.

*Santonin.*—During the past year, the factory at Tschimkent (Turkestan) produced 40,000 kilos of this proximate principle.

*Thalline.*—In addition to the use of this substance as an efficient antipyretic, it has begun to be used with success as a remedy in gonorrhea, a 2-per-cent solution of the sulphate or tartrate being used as injection, or it is applied, mixed with butter of cacao, in form of bougies.

### Casein as an Emulsive Agent.

At a recent meeting of the Paris Pharmaceutical Society, Mr. Léger read a paper on the use of casein as an emulsifier. He says:

Having reviewed the different substances employed in pharmacy for forming emulsions, such as gum arabic, gum tragacanth, yolk of egg, tincture of quillaja, etc., and pointed out their faults, which all pharmacists knew, he said the idea struck him to try some albuminoid substance in their stead, since natural emulsions are made with bodies of this character. In milk, the model of emulsions, butter is kept in suspension by casein. Then why not try to separate out the butter and obtain the casein of the milk in a soluble condition, and then see what sort of emulsion will result? The first step, the elimination of the fatty substance, is best performed by means of ammonia, as has been demonstrated by another member of the Society. The separation is not so perfect as when such a solvent as ether is employed; but it is sufficient for practical purposes, and more convenient with large quantities of liquid. M. Léger takes 4 liters of milk and 60 grammes of ammonia (say 1 gallon of milk and 2½ oz. ammonia), and after shaking well sets the liquor aside for 24 hours. Two layers are now observed, the semi-saponified butter above and the lacto-serum below. The lower liquid is drawn off, and casein is precipitated from it by acetic acid. The magma is collected and strongly pressed to drive off moisture; now add by trituration 10 grammes of bicarbonate of soda, and, finally, mix in enough sugar to obtain a powder representing when dry about 10 per cent of its weight of casein. The preparation keeps well in securely corked bottles during three years at least, according to experiments made so far. It has a slight, not unpleasant smell, which is not appreciable in preparations.

Now, as to the way to use it, M. Léger divides substances to be emulsified into two classes, that is (1), those soluble in alcohol, and (2) those insoluble. The first class, which includes resins, balsams, oleoresins, etc., can be worked very simply in the bottle itself. The product is first weighed or measured into the vial, and enough alcohol is added to dissolve it. Then for a 4-oz. mixture about 10 grammes (2½ drachms) of saccharated casein, dissolved in equal weight of water, is added and thoroughly shaken, after which the remaining water, etc., are gradually introduced, with continual shaking. With class (2), that is ordinary oils, a mortar is needed. The manipulation is to follow exactly the directions of the Codex in the article "Emulsions," only substituting for gum-arabic an equal weight of saccharated casein.

The emulsions thus formed are more perfect and more stable than those obtained with any other emulsive agent. But their greatest merit, M. Léger claims, is that they are more palatable, and more easily supported by the stomach. Castor oil, for instance, which to children has to be administered in the liquid state, since they cannot take capsules, he found in his experience to be readily accepted and retained by the most delicate stomachs. The same patients could not retain the oil emulsified with gum-arabic or tragacanth.—*Chem. and Drugg.*, May 7th.

### Fallacies of Filtration.

The average householder is sensitive upon the subject of his filter. He has paid a heavy price for the word "patented" stamped upon it, and the limpid stream which trickles from it is to him a sufficient refutation of all aspersions upon its efficiency. If he changes the filtering material once annually, the whole duty of man has been accomplished. It is only when the trickling stream dwindles down to an hourly drop that any doubts arise as to the fidelity of the trusted utensil.

What has preceded this clogging? A filter arrests a large proportion of the particulate matters in water, and in ways that are obvious. Among such matters are bacteria—chiefly represented by the ordinary almost omnipresent *water bacteria*, which are practically harmless as constituents of drinking water, unless they remain there under conditions favorable to the development of those products of decomposition intermediate between proteid matter and its ultimate dissolution. In addition, and held in the pores of the filter by some means not fully understood, there is present a portion of the soluble albuminoids of the water; here, then, we have congregated both the microörganisms and their culture medium; and, given a reasonable degree of temperature, here are the conditions requisite for introducing into the filtered domestic water supply the complete series of soluble products of albuminoid decomposition. Not only is this the case, but, after the first few days of use, the completeness of the removal and retention of the bacteria is diminished, and the results of the proliferation of these organisms are manifest in their numerical increase in the filtered as compared with the unfiltered water. This is well shown in a series of experiments with different filters, by Dr. G. T. Swarts, reported to the Rhode Island Medical Society, and recorded in *The Boston Medical and Surgical Journal* of March 24th, 1887.

His results show that some filters when first used successfully remove a certain proportion of organisms from the water. Other tests made seventeen days later showed in every case a marked increase in the number of colonies in the filtered as compared with unfiltered water. For instance, the unfiltered water contained thirty-six colonies of growth, while the filtered water showed the presence of colonies to the number of 2,000, 9,000, and 10,000. An examination on the seventieth day showed an increase in case of one filter, of 117,000 colonies.

Another series of experiments was made to determine how far the consumer could cleanse his filter or sterilize it in some simple manner. The results showed, however, that even with every possible precaution, the number of organisms in filtered water exceeded the number in unfiltered by several thousands.

These investigations show conclusively that the organic matter retained in the meshes or interstices of the filtering media contains organisms which increase rapidly while the filter is or is not in use, and especially if its position is in a warm kitchen or in proximity to a hot-water pipe.

The question of what would happen if a few stray germs of typhoid or cholera should enter this ready-made culture bed, and sojourn there until, reinforced by their progeny, they enter the organism of the unsuspecting prohibitionist, one hundred thousand strong, is unpleasantly suggestive.—*Med. News.*

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**The School of Pharmacy of Cornell University.**—In the "Cornell University Register" for 1886–87, various interesting particulars are given concerning the new school of pharmacy, which is to be opened to students at the beginning of the autumn term of the current year. The course is to be extended over two full college years, and is to include, besides the branches usually taught in colleges of pharmacy, laboratory work in analytical and pharmaceutical chemistry, toxicology, and microscopical botany. Candidates for admission must be eighteen years of age, and must pass the regular English examinations, besides an examination in German or Latin. Those who fail in German may be admitted provisionally, being required to pursue the study of that language in addition to the regular work of the course. Those who have been engaged in the business of pharmacy for two years may be admitted as special students (not as candidates for a degree) without examination.

**A New Specific for Diabetes,** introduced by Dr. Martineau, on the recommendation of Dr. Rouget, consists of arsenicated lithia water, prepared as follows:

In the upper part of a Briet apparatus of one liter for making aërated water are to be introduced 20 Cg. of carbonate of lithium, and a tablespoonful of the following solution: Arseniate of sodium, 20 Cg.; distilled water, 500 Gm. This water to be drunk at meals with wine, and the contents of the recipient to last for three meals.

**Naphthalin,** in daily dose of 1½ grammes, is said to render offensive urine sweet and clear when the abnormal condition is dependent upon disease of the urinary passages, such as pyelonephritis, cystitis, etc. It causes no disturbance of digestion, and does not increase the frequency of micturition.

### The Manufacture of Santonin.

**Mr. L. Knapp**, the manager of the Tschimkent Santonin factory, publishes some interesting particulars of the manufacture of santonin in the *Journal für Practische Chemie*. From his account it appears that the crude material, consisting of the dried unexpanded flower-heads of the Artemisia maritima, a shrub growing abundantly on the saline soil of Central Asia, and of which santonin is the active principle, is made into a paste with milk of lime, about 58 lbs. of the latter being taken to 128 lbs. of the flowers. The paste is next diluted with water, mixed with wood shavings, and ground, the heat generated during the latter process being sufficient to dry the compound. The lime converts such constituent bodies as are easily soluble in alcohol into calcium compounds, and the santonin into a very soluble calcium salt: $2C_{15}H_{18}O_3 + Ca(OH)_2 = Ca(C_{15}H_{19}O_4)_2$. The ground product is well cooled, and digested with a large quantity of alcohol at 65° to 70°. The liquid is then freed from alcohol, and neutralized at 70° with hydrochloric acid, by which process the calcium santoninate is precipitated. In about three to five days the crude santonin crystallizes out, the liquor is run off, and the crystals washed with cold water on a filter. The liquid employed averages 160 liters per 100 kilos of seed. The impure santonin is decolorized with purified animal charcoal. The average yield of pure santonin at the Tschimkent works is 1.9 per cent of the crude material, but it would be possible under certain circumstances to obtain 2.12 per cent. The loss probably occurs through the absorbing action of the charcoal.

During the process of neutralization with hydrochloric acid, a large amount of resin is separated, which adversely affects the value of the product. The resin occurs partly as a sediment and partly floating on the surface of the liquid; but particles of the latter are again precipitated by adhering to the santonin crystals which sink. A specimen of the sediment after having been digested with a hot solution of soda in order to recover part of the santonin was found to still contain about 70 per cent of crude santonin. Santonin becomes resinous by heating it with hydrochloric acid; it is not, as has been stated by Kosmann, a glucoside, for it is capable of sublimation, a property not possessed by glucosides. Santonin treated in alcohol with alkaline hydrates yields salts more or less soluble, while, on the other hand, with heavy metallic oxides it only unites under special circumstances, and even then in a very loose manner, decomposing on heating. Santonin resin is a combination of various decomposition products of santonin; but it is not obtained from santonin by drying, as was formerly believed to be the case. It is impossible to separate the santonin and the resin by means of solvents, but Mr. Knapp discovered an excellent separating agent in salts of lead or iron, preferably the former. These salts precipitated the resin, to the alcoholic solution of which is added a slight excess of acetate of lead, the mixture digested for a considerable time, and filtered at 60° to 70°. The lead residue has to be removed from the filtrate order to secure the proper crystallization of the santonin. The lead is precipitated by soda, and the santonin liberated by the addition of hydrochloric acid to the santoninate of soda. It is not advisable to treat the liquor from the diffuser directly with acetate of lead, as the former contains coloring materials which are not precipitated by hydrochloric acid, but separate at a subsequent stage of the process, and cause the crude santonin to become impure. The by-product, or exhausted crude material, is said to be utilized for fuel, or partly made into bricks for building purposes.—*Chem. and Drugg.*

### A Plant which Destroys the Taste for Sweets.

A **plant** named *Gymnema sylvestre* R. Br. is a native of India. After two or three leaves have been chewed, the sense of taste is not for some time capable of distinguishing sweet flavors. The plant is asclepiadaceous, growing on the Deccan peninsula, from Concan to Travancore, in Assam, and on the Coromandel coast as well as on the African continent. It is mentioned in Dr. Dymock's "Materia Medica of Western India," and the powdered root has long been used by Hindus as a local application for snake-bites, as well as internally, in form of decoction, in similar cases. For 1 to 2 hours after chewing the leaves, coarsely powdered sugar has no more flavor than sand or, at most, only a saltish taste. So, too, bitters lose their flavor and sulphate of quinine tastes like so much chalk.

Alcohol and water are capable of dissolving the active principle of the leaves. The ether extract consists of cholorophyll and two resins, separated by their different solubility in alcohol, the one insoluble in spirits forming the larger portion. The latter is soluble in chloroform, carbon disulphide, and benzin, and is elastic and tenacious. It seems to consist of a neutral resin. The resin which is soluble in spirit is readily saponifiable with soda, and gives a permanent bluish-green color with sulphuric acid. Both resins are acrid and leave a tingling sensation in the throat when swallowed. Gymnenic acid, as separated, found by David Hooper, forms more than 6% of the leaves, in combination with a base which has yet not been isolated.—*Nature.*

### The Chemical Constitution of Cocaine.

As the chemical relation of cocaine to ecgonine is already known, the attention of several investigators has been drawn to the chemical nature of ecgonine, with a view of ascertaining how its molecule is built up, and with what other organic compounds it is related. Some time ago, C. E. Merck succeeded in converting hydrochlorate of ecgonine partially into a new basic compound which could, however, not be obtained entirely pure. Yet he succeeded in preparing from it its pure compound with gold. The new base found proved to differ from ecgonine merely by the separation of water. As Merck's method of preparation is imperfect, and Alfred Einhorn had already discovered a better one, at the time when Merck's paper was published, Einhorn considered himself justified in publishing his own results (*Ber. d. Deutch. Chem. Ges.*, 1887, 1221).

This "anhydro-ecgonine" has at present merely a scientific interest, and we shall therefore only give its mode of preparation in outline.

20 Gm. of hydrochlorate of ecgonine are boiled for 2 hours, under an upright condenser, with 100 Gm. of oxychloride of phosphorus. This causes the gradual solution of the hydrochlorate. After the reaction is over, the liquid is poured into water to separate the excess of the oxychloride. When the liquid has cooled (the pouring into the water generates much heat), a solution of iodine in hydriodic acid is added, which causes the "anhydro-ecgonine" to separate as a brownish-violet precipitate. This separation is as complete, according to the author, as that of barium by sulphuric acid. The periodide is filtered off, washed with water, and the crude product, suspended in water, distilled by the aid of steam. This causes the gradual formation of hydriodate of anhydro-ecgonine and of free iodine, which latter is gradually dissipated. The hydriodate is allowed to crystallize, and purified by recrystallization.

From further results obtained by the author, which cannot be summarized to advantage here, it is certain that the new base contains an acrylic acid rest. Merck's investigations have shown that both the new base and ecgonine itself contain a methyl-group united with the nitrogen; consequently, the new base, anhydro-ecgonine, is to be regarded as tetrahydropyridylacrylic acid, with methyl at the nitrogen. Ecgonine is then nothing else but methyltetrahydropyridyl-β-oxypropionic acid, and *cocaine* is the benzoylated methylic ether of ecgonine, that is, *methyl-tetrahydropyridyl-beta-benzoyl-oxypropionate of methylic ether*. The constitution of these compounds may be expressed by the following formulæ:

$C_5H_4N(CH_3)H_4.CH.CH.COOH$, anhydro-ecgonine.

$C_5H_4N(CH_3).H_4.CHOH.CH_2.COOH$, ecgonine.

$C_5H_4N(CH_3)H_4.CHO(OCC_6H_5).CH_2.COOCH_3$, cocaine.

The problem of the synthetic preparation of cocaine has, however, not yet been quite solved. But it is evident that this will be accomplished in a short time.

### Distinction of Castor Oil from other Fats.

**Dr. Finkener** reports the results of some experiments on the distinction of castor-oil from other oils, in the *Chem. Zeit.*

The experiments were carried out with the object of finding a suitable method for customs purposes. A 100 C.c. glass cylinder of 25 mm. diameter is provided with a 10 and 60 C.c. mark (measured from the bottom). The oil is run in to the 10 C.c. mark, and the tube is then filled up to the 60 mark with alcohol (0.829 sp. gr.). Absolute alcohol cannot be employed, but at 17.5° C. alcohol of 0.829 sp. gr. dissolves castor-oil in almost every proportion, the other oils only slightly. The tube is closed, well shaken, and the mixture examined after standing two or three minutes. Pure castor-oil gives a clear solution. But with 10 per cent of other oils (olive, sesame, linseed, cotton-seed, rape-seed oils) a turbidity is obtained at the average temperature, which does not disappear even above 20° C. Another test tried was the following: On treating pure castor-oil with sulphuric acid, a product (a sulpho-acid) is obtained which gives an almost perfectly clear solution with 40 times the quantity of water. On treating other fatty oils (such as sesame or olive oil) similarly, very milky precipitates are obtained. The latter method is, however, not reliable, as mixtures of 80 per cent of castor-oil or 20 per cent of olive or sesame oil, treated similarly, also give almost perfectly clear solutions.—After *The Analyst.*

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**The Poisonous Nature of Colchicin.**—Colchicin acts as an irritant poison, affecting all the organs, but especially the digestive canal and the kidneys. The minimum fatal dose of colchicin for dogs and cats is 0.000571 Gm. per kilo of the weight of the animal if introduced hypodermically, but 0.000125 Gm. per kilo if introduced into the stomach. Colchicin is eliminated by different channels, but this process is slow, whence slight but repeated doses, 0.00016 Gm. per kilo, may prove fatal in five days.—*Compt. Rend.* and *Chem. News.*

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## EDITORIAL.

The efforts which have been made to establish a pharmaceutical college in connection with Tulane University, in New Orleans, are reported to give promise of successful results, and a committee of the Louisiana Pharmaceutical Association expressed the belief that Louisiana will soon have one of the best schools of pharmacy in the country.

It is reported that the opposition to the enactment of a pharmacy law in Louisiana during the recent session of the legislature came largely from pharmacists in country districts. This opposition was so strong as to lead to the belief that there is no reasonable expectation of its being overcome in the immediate future.

Why do our friends who are instrumental in the organization of State pharmaceutical associations find it advisable to insert the word "State" in the title, when the use of the name of the State is quite sufficient to indicate the scope of the society in most instances? For example: The Massachusetts Pharmaceutical Association would certainly be long enough by itself without the interpolation of a word of five letters which in its use illustrates a form of tautology and is quite uncalled for. In the case of New York the insertion of the word State became necessary, owing to the existence of a city of the same name.

It might be a paying venture for apothecaries to manufacture the apparatus recommended by Dr. Morel for administering gaseous enemata for the treatment of phthisis. The results of its use in the neighborhood of Philadelphia have been so good that there is just now a lively demand for the apparatus. Indeed, there seems to us no reason why the carbonic acid generator used for carbonating beverages may not be employed to fill the india-rubber bags which could then be sent to the house of the consumer morning and night, as wanted, the empty bag being returned. This would avoid the extemporaneous preparation of the gas and the liability to accidents from spilling oil of vitriol, breakage, etc. A rental could be charged for the rubber reservoirs, or they might be sold at once to the patient.

Florida Pharmacists are invited to meet in the Jacksonville Board of Trade Rooms, at noon on Wednesday, June 8th, to take part in the organization of a State Pharmaceutical Association. A preliminary meeting was held on May 12th by Jacksonville druggists, of which W. A. Dell was chairman, and J. M. Farlin, secretary, and a committee on subscriptions and entertainments was chosen, consisting of Messrs. Dale, Canora, Ward, and Melter. Nearly $100 was subscribed at once. Arrangements will be made for transportation and hotel accommodation at special rates, and those who desire to be present will find it for their interests to communicate at once with Mr. Farlie.

It is said that the influence of wholesale houses in Indianapolis secured the defeat of the Indiana Pharmacy Bill.

It is proposed to hold an International Chemical Exhibition in Germany.

The next International Pharmaceutical Congress will be held in Switzerland in 1893.

A note from Dr. J. A. Miller, of Harrisburg, Secretary of the Pennsylvania Pharmaceutical Association, received just before going to press, informs us that the Governor has signed the Pharmacy Bill and that it has now become a law.

Dr. Miller also informs us that the Tenth Annual Meeting of the State Pharmaceutical Association, commencing on the 14th inst., will be held in the Philadelphia College of Pharmacy (by the courtesy of the members of the College), and that the cost of hotel accommodations will be: Washington House, $2.00; Girard House, $3.00; Continental, $2.50 to $3.00; Irving, $2.00; Brigham House, $2.50 per day.

Excursion tickets to the place of meeting, good for one week, can be purchased at the rate of two (2) cents per mile, at any office of the Reading Railroad, Pennsylvania Railroad, and their branches, by presenting an order which can be had upon application to the Secretary.

All the members of the Association are urged to be present at the meeting, and to bring ladies, for whom social entertainments will be arranged.

**South Dakota Board of Pharmacy.**—At the organization of the Board in Woonsocket, on May 17th, H. L. Warne, of Mitchell, was elected president, and J. L. Kreychie, of Iroquis, secretary. Applications for blanks for registration should be addressed to the secretary. The board will next meet in Huron on June 28th, at 9 A.M., for the examination of candidates and the issuing of certificates to those legally entitled thereto. The law applies to all practising pharmacy in Dakota south of the VII. standard parallel and all who are unprovided with certificates after the lapse of 90 days from the enactment of the law will be liable to a fine of $50.

**The Minnesota Pharmaceutical Association**, at its meeting on the 14th and 15th of June, will convene in Turner Hall, at 10 A.M., where the exhibition will also be held. So far as completed, the programme provides for addresses by the mayor and by the president in the morning of the 14th; election of members and officers, official reports and papers in the afternoon; and in the evening a concert, gymnastic exhibitions, and speeches.

The morning of the 15th will be devoted to the report by the Board of Pharmacy and miscellaneous business; the afternoon in sight-seeing, and the evening to a reception at the house of Mayor Weschcke. Charles L. Roos is the Local Secretary.

**The Louisiana Pharmaceutical Association** met in New Orleans on the 13th of April in Tulane University, under the presidence of Mr. Oscar Robin. The association has one hundred and thirty active members on its roll, and a balance of $650 in its treasury. The officers and committees for the ensuing year are: C. S. Keppler, president; W. Carson and F. C. Godbold, vice-presidents; L. F. Chalin, recording secretary; Mrs. E. Rudolph, corresponding secretary; J. B. Lavigne, treasurer. To serve on executive committee: Messrs. J. T. Thibodeare, J. J. Mellon, J. Johnson, A. K. Finlay, and W. Graner. Delegates to A. P. A., A. K. Finlay, F. C. Godbold, R. N. Girling, W. Bogel, and W. Graner. Trade Interests: L. Lyons, W. T. Cluverius, and S. Hiratt. Pharmacy and Queries: B. Tuma, S. W. Richardson, and L. L. Abbott. Adulterations and Deterioration of Drugs: R. N. Girling, F. Lascar, and J. Johnson. Legislation: J. J. Mellon, A. K. Finlay, W. Graner, E. Brand, and J. T. Thibodeau. Exhibits: C. K. Hall, E. May, J. N. A. Otto, and E. J. Wunderlich. Entertainment: W. M. Levy, J. B. Lavigne, J. Johnson, W. Bogel, and L. M. Lyons. The following papers were read: Mr. Keppler, on "Indigenous Medicinal Plants;" J. J. Johnson, on "Tobacco;" Mr. C. L. Keppler, on "Gelsemium Sempervirens;" and a volunteer paper on "Syrup of Soluble Oxide of Iron."

Mr. E. J. Hart offered a prize of $25.00 for the best preparation of drugs exhibited at the next meeting, which will occur on the second Wednesday of April, 1888.

**The Albany Pharmaceutical Association, April 14th**, elected the following officers: F. J. Smith, president; C. E. Lloyd, vice-president; Joseph Bandorf, treasurer; George R. Cardwell, secretary; Charles van Loon, J. H. Miller, A. B. Huested, G. E. Ferguson, W. W. Macomber, executive committee.

**The Nebraska Pharmaceutical Association** met at Omaha on May 10th, several hundred people being present in Exposition Hall at the opening of the session at 3 P.M. Mr. James Reed, the president, introduced Mr. H. I. Clarke, who welcomed the association to the city and congratulated it upon its prosperity and its large membership (over 500). Mr. W. C. Lane responded, and the executive committee reported 115 applications for membership.

The president, in addressing the association, referred to the recent enactment of a pharmacy law, and to the services rendered by several persons connected with the legislative work, and announced the membership of the Board of Pharmacy organized on May 7th in Lincoln: Messrs. W. C. Lane of Lincoln; Henry D. Boydan of Grand Isle; Max Becht of Omaha; A. F. Steritz of North Platte, and Henry Cook of Red Cloud. The president next referred to a number of matters connected with the business of pharmacy, and suggested the establishment of life memberships and the patronage of pharmaceutical journals. Acting in his official capacity, he had appointed Mr. N. A. Kuhn, of Omaha, to represent the association in the preparation of a National Formulary. He recommended that the secretary should be made a permanent officer, and that avoidable expenses should be cut down.

The secretary reported receipts (with balance) amounting to $424, the expenditure of $652.97, and unpaid dues aggregating $710.

Dr. J. R. Brown, of Lavenworth, addressed the meeting on the subject of "Pharmaceutical Education;" Mr. Henry D. Boydon on "The General Quality of the Pressed Herbs of the Market;" Dr. O. A. Wall on "Percolation."

The salary of the secretary was increased to $100, and Lincoln was selected for the next meeting, to be held May 3d, 1888.

The association voted to recommend that the Board of Pharmacy recognize diplomas of reputable schools of pharmacy requiring a four years' course of study, but not the certificates of other State Boards.

The following officers and committees were chosen: President, M. E. Schultz; vice-presidents, C. H. Bruner, P. C. Corrigan, W. B. Shryock, W. P. Haller, W. P. Hughes; secretary, C. J. Daubach; local secretary, W. C. Lane; treasurer, J. Forsyth; chairman of committee for A. P. A., and N. R. D. A., N. A. Kuhn.

**Ohio Pharmaceutical Association.**—The ninth annual meeting will be held at Akron in the council chamber, commencing at 11 A.M., Wednesday, June 8th, 1887. On account of easy access by rail from all parts of the State, the attendance will be large, and the exhibition of drugs, chemicals, etc., from present indications, will surpass all held heretofore. Every druggist in the State is cordially invited to participate in our deliberations, whether he is a member or not. Some may think that, as we now have a pharmacy law, their presence is not required at the meeting. This is a great mistake, for at this meeting business will come up that, to the druggist, is of just as much importance as the pharmacy law question was. By not attending this meeting, you will miss a rare treat, which is in store for you in the way of an entertainment. If you cannot attend, show your approval of the objects of the association by joining it in membership. Application blanks can be obtained from any member or from the secretary. Also bear in mind that reduced *railroad* rates from all points in the State are to be had by applying to the secretary for a certificate. LEWIS C. HOPP, *Secretary.*

**St. Louis College of Pharmacy.**—At the twenty-second annual meeting, held April 25th, the election of officers for the ensuing year resulted as follows: President, C. F. G. Meyer; vice-president, Louis Shurk; recording secretary, G. H. Chas. Klie; corresponding secretary, H. M. Whelpley; treasurer, Solomon Boehm. Three trustees, to serve for a term of two years, were elected as follows: F. W. Sennewald, Julius E. Koch, and H. E. Hoelke. The three trustees holding over are Geo. H. Ude, Dr. E. Ahl-Brandt, and A. P. Kaltwasser.

**Thomas Christy & Co.**, of London, Eng., inform us that they have removed to more spacious and convenient premises, at 25 Lime street, E. C., where communications should now be addressed. They now have a show-room for specimens of rare and new drugs; a manufacturing department, and ample accommodations for storage of products, etc.

**Mr. Theodore Metcalfe**, of Boston, who for over fifty years has been in business at No. 39 Tremont street, and steadily increased an enviable reputation as a pharmacist, was lately the recipient of a very complimentary dinner from his friends. Among the many distinguished persons present was Dr. Oliver Wendell Holmes, who gave an amusing account of his early acquaintance with Mr. Metcalfe. In the course of his remarks he hinted at the relations existing between them and the undertaker across the way, which may have had something to do with Dr. Holmes' early retirement from practice.

### Illinois Pharmaceutical Association.

EDITOR AMERICAN DRUGGIST:—The date of meeting of the Ill. S. P. A. has been changed from June 14th to August 23d, when it will convene at Decatur. Mr. Henry Smith has been appointed local Secretary, vice W. C. Armstrong resigned.

All statements of change are in error; this is first *official* notice given.

Fraternally,
L. C. HOGAN, Sec'y.

ENGLEWOOD, ILL., May 26th, 1887.

**The California Pharmacy Law** has failed to be enacted.

**The Missouri Pharmaceutical Association** will meet at Luret Springs on the 28th instead of the 21st of June.

**Exports of Cinchona** bark from Ceylon in 1886 were 14,675,633 lbs., against 13,736,171 lbs. in 1885.

**The American Association for the Advancement of Science** will meet in New York City in August next.

**Missouri Pharmaceutical Association.**—The time for holding the annual meeting has been changed from the 21st to the 28th of June.

**Resignations from a Homœopathic Hospital.**—Eight of the women physicians connected with the "Medical, Surgical, and Maternity Hospitals of the Women's Homœopathic Association of Pennsylvania" have resigned because the managers have made a rule that "no medicines, except strictly homœopathic potentized remedies, shall be allowed for use in the dispensaries or in any department of the hospital."

**Extensive Opium Smuggling.**—A telegram from Detroit of March 11th, to the *N. Y. Daily Tribune*, says: Large quantities of opium have been shipped recently from Detroit. In some way the Customs authorities learned of this fact. They ascertained that no such quantities had passed their hands as were being sent out of the city. Careful investigation revealed that the opium was being brought to America by way of British Columbia and shipped to Ontario, only to disappear and find its way to Detroit. The search for the offenders resulted today in the arrest of R. A. West, a temporary resident of this city. West was taken before United States Commissioner Graves this afternoon and held in $10,000 bail to answer to-morrow to the charge of smuggling. The customs authorities say that by smuggling this opium the Government has been swindled out of nearly $6,000. The opium was sent out from this city to California labelled "Glassware," "Drugs," and on its receipt at Windsor it appeared as "Chinese Curios."

**Rhigolene and Oil** are recommended by Dr. Aug. Stabeler, of Lawrence, Mass., as a vehicle for medicines to be applied in the form of spray to the nose and throat. He employs two parts of the former with six parts of olive or almond oil (by measure), and finds that the mixture requires no more air pressure than water does to convert it into a fine and permanent spray. It does not irritate the mucous membrane, but, on the contrary, seems to be mildly anæsthetic. When directed towards an open flame it does not ignite. Experiments demonstrate that it will readily dissolve copaiba balsam, oil of cubeb, camphor, eucalyptol, iodine, iodol, iodoform, oil of sassafras, salol, turpentine, thymol, and crystals of menthol, naphthalene and phenol; the mixture will hold in solution 3 per cent of resorcin. No astringent has yet been found which is soluble in the mixture, and he uses instead iodo-tannin which is prepared as follows: In a saturated tincture of iodine dissolve as much tannin as it will hold. This is miscible with any proportion of castor-oil and may be thinned with rhigolene to the desired consistence. The solution is clear, red, and slightly irritating, but the irritation quickly subsides.—*Med. News.*

**Ergot** was first described in medical works of the sixteenth century, but was probably long before known. Its specific physiological properties, however, were first understood and appreciated in modern times.

**Bicarbonate of Sodium by Urethral Injection.**—Acting upon the admitted theory that gonorrhœa is a parasitic disease and the observations which prove that the parasite can only flourish in an acid medium, Dr. Costellan ascertains, first, by means of litmus that the urethral discharge *is* acid and then advises the use of a 1% solution of bicarbonate of sodium to be injected 3 or 4 times daily. The scalding accompanying the passage of urine ceases at once and convalescence ensues after about one week of this treatment.

**Exports of Cinchona** bark from Ceylon in 1886 were 14,675,663 lbs., against 13,736,171 lbs. in 1885.

### Detection of Coloring Matter in Butter.

THE following for the detection of annatto is recommended by Mr. H. B. Cornwall:

Dissolve 5 grains of the warm filtered fat in 50 C.c. of ordinary ether in a wide tube, and shake the solution vigorously for 10 to 15 seconds with 12 to 15 C.c. of a very dilute aqueous solution of caustic potash or soda, only alkaline enough to give a distinct reaction with turmeric paper, and to remain alkaline after separating from the ethereal fat solution. The corked tube is set aside, and in a few hours, at most, the greater part of the aqueous solution, now colored more or less yellow by the annatto, can be drawn from beneath the ether with a pipette, or by a stop-cock below, in a sufficiently clear state to be evaporated to dryness, and tested in the usual way with a drop of concentrated sulphuric acid. If thought necessary, this extract may be further purified by shaking with a fresh portion of ether.

The dry, yellow, or slightly orange residue turns blue or violet blue with sulphuric acid, then quickly green, and finally brownish or somewhat violet, this final change being variable according to the purity of the extract.

Saffron may be extracted in the same way. It differs from annatto, the most important difference being in the absence of the green coloration.

Genuine butter, free from foreign coloring matter, imparts at most a very pale yellow color to the alkaline solution; but it is important to note that a mere green coloration of the dry residue on addition of sulphuric acid is not a certain indication of annatto (as some books state), because the author has thus obtained from genuine butter, free from foreign coloring matter, a dirty green coloration, but not preceded by any blue or violet-blue tint.

Turmeric is easily identified by the brownish to reddish stratum that forms between the ethereal fat solution and the alkaline solution before they are intimately mixed. It may be even better recognized by carefully bringing a feebly alkaline solution of ammonia in alcohol beneath the ethereal fat solution, with a pipette, and gently agitating the two so as to mix them partially. Blank tests should be made with the ether, but it is easy to obtain ether that leaves nothing to be desired as to purity.—*Am. Chem. Journal*, and *Chem. and Drugg.*

### French Wines and Liquors.

UNITED STATES CONSUL GIFFORD, at Bordeaux, warns the American public to beware of French liquors, more especially brandy, because *no pure French brandy* is sent hither. After commenting upon the methods employed in making brandy for export, he goes on to say that the labels on the bottles do not represent the quality of the liquor they contain. The dates 1863, 1870, 1875, etc., do not, he says, mean that the inclosed liquor is brandy put up in those years. It means that the liquor has been made to resemble as closely as possible that which was really made in those years. In other words, the brandy sent hither from France is spurious, a concoction put up in the laboratory, in which the taste of good brandy is counterfeited by various chemicals.

It is worthy of comment that, while the laws against selling spurious wines and liquors in France are rigid in the extreme, little or no attempt is made to prevent the chemical preparation and adulteration of these liquids for exportation.—*Scientific American.*

### Thymol as a Remedy in Tapeworm.

AN Italian physician recommends thymol as a remedy for tapeworm. A dose of about half an ounce of castor-oil is given in the evening, when the patient should abstain from food, and take, next morning, two drachms of thymol, divided into twelve doses, one every quarter of an hour. About half an hour after the last dose has been given, a dose of castor-oil should be administered. This is usually followed by the expulsion of the dead worm. Thymol quickly depresses the pulse, respiration, and temperature, and to obviate any ill effects from this cause, frequent doses of brandy or spirits should be given at the same time. The advantages of thymol are said to be that it produces no disturbance of the stomach, is rapid in effect, is both a tænicide and a tænifuge, and, while certain in action, will do no great harm if an error in diagnosis has been made.—*Chem. and Drug.*

* * *

**Hippocrates** employed a variety of medicines which, even at present times, are continually employed and held in high favor. Besides iron rust and hellebore, he was possessed of the knowledge of elaterium, colocynth, scammony, cantharides, asafœtida, papaver somniferum, mandragora, and antimony. As prophylactics he made use of wine, vinegar, and kindred articles, and employed them for lotions and enemata, and for the same purpose they are still in use, notwithstanding the fact that he is almost forgotten.

### Gelatin Preparations.

FROM an interesting article on this subject, published in the *Rundschau* (1887, No. 6) by Mr. Adolf Vomacka, of Prag, who has had a large practical experience in this direction, we abstract the more important portions.

The proper kind of gelatin to be used is the *white* variety, as it has the lowest melting point, and is more apt to become liquefied at the temperature of the body. The best is the quality known as "French, white, silver." The proportions between gelatin, water, and glycerin cannot be the same in all cases, as the nature of the substance to be combined with the mass may require a modification.

Where gelatin preparations are in the habit of being ordered, it is best to keep on hand a supply of one or more suitable gelatin masses. When a supply of any of these is prepared, it must be well skimmed while liquid, then poured into glass jars, and after it is cold and set, a layer of alcohol is poured on top to prevent it from moulding. Of course, the jar must be well stoppered.

When it is wanted for use, the vessel is placed in a water-bath, and enough of the melted mass is then poured out.

The mass itself is prepared in the following manner:

Soak the exactly-weighed gelatin over night in distilled water and drain it upon a sieve next day. From there it is transferred to a porcelain capsule, and covered with enough distilled water to make up what is still lacking of between 4 or 5 times the original weight of the gelatine. Next place the capsule into an upper retort ring, place a wire-gauze upon one below this, and carefully heat by applying a flame below the wire-gauze, care being taken that the mass does not become burned.

When it is melted, it is strained through a woollen cloth, then mixed with glycerin of spec. gr. 1.25, and evaporated until it reaches the quantity indicated in the below mentioned formulæ.

The mass is then allowed to cool, cut out from the dish next day, the somewhat harder rim or skummy surface stripped off, finally cut in several larger pieces, which are wrapped in paper, and kept in a moderately dry (neither too dry nor too moist) place for about a fortnight, when they are remelted, after which the mass is transferred to the glasses.

This process which appears somewhat cumbrous, yields a very serviceable mass. It is necessary to note upon the label carefully the exact proportions of gelatin, glycerin, or water.

For casting the suppositories, etc., moulds made of metal or soapstone are used. When making round vaginal suppositories, however, or similar preparations, well-oiled cones or globes of thin parchment paper are required. In the case of bougies, oiled glass tubes or quills are used.

If gelatin preparations are often called for in a pharmacy, it is best to use only metallic moulds.

For different preparations, differently composed masses will be required, namely:

| | I. | II. | III. | IV. | V. |
|---|---|---|---|---|---|
| Gelatin | 20 | 10 | 10 | 10 | 30 |
| Water | 80 | 40 | 40 | 40 | 100 |
| Glycerin | 40 | 15 | 20 | 30 | 15 |
| Evaporated to | 60 | 25 | 50 | 60 | 100 |

No. I., which is anhydrous, is used for such preparations as are to be kept in stock and are intended to remain transparent.

No. II. is intended for hygroscopic preparations.

No. III. for suppositories.

No. IV. for vaginal globules, ear suppositories, and bougies.

No. V. for sticks containing a large proportion of iodoform, or of bougies which are intended to contain a large proportion of ingredients insoluble in water or alcohol.

Nevertheless, these different masses may be required to be employed in a different manner. In each case it is necessary to adapt the mass to the ingredients.

The moulds to be used are first slightly coated with white vaseline or oil, and lightly rubbed out, so that only a minute layer of the fat remains behind.

If the moulds are not warmed, the cast products are apt to turn out full of air-bubbles or opaque, since the mass congeals in the cold mould, and prevents the escape of the retained air.

If some pulverulent medicinal agent is to be added to the mass, and the latter would anyhow remain untransparent, the mass must be allowed to become cool enough to cause a drop falling upon a cold stone to conceal. After this, it is poured at once into the cold mould.

Substances soluble in water or alcohol are dissolved in the least possible quantity of the menstruum and added to the melted mass, while stirring. Insoluble substances are incorporated, in the form of finest powder, by means of a pestle.

Too strong a trituration or stirring must be avoided, since the resulting air-bubbles are difficult to remove, and the product would suffer in appearance.

Special formulæ for various gelatin preparations are here appended.

### I. BOUGIES.

*a.* With Sulphate of Zinc,
Sulphate of Copper,
Nitrate of Silver,
Extract of Opium,
Morphine Salts,
Corrosive Sublimate, etc.,
are prepared like the following:

| | |
|---|---|
| Mass No. IV | 99 parts. |
| Sulphate Zinc | 1 part. |

Dissolve the Sulphate of Zinc [or other salt] in a little water, add it to the melted mass, and pour into moulds.

If a large stock of sulphate of copper bougies are to be prepared, to be kept on hand, only so much of the salt as is required for one melted batch is dissolved and incorporated at one time, because were the whole mass made in one lot, it would soon become yellowish-green when it is reheated.

*b.* With Carbolic Acid and other substances easily soluble in alcohol.

| | |
|---|---|
| Mass No. III | 50 parts. |
| Glycerin | 7 " |
| Carbolic Acid | 8 " |

Dissolve the Carbolic Acid in a small quantity of Alcohol, mix with the melted mass, and proceed as before.

*c.* With Iodoform (50%) or other substances insoluble in water or alcohol.

| | |
|---|---|
| Mass No. V | 54 parts. |
| Iodoform | 27 " |

Proceed as above directed. Dry the bougies, in a drying oven, until they are reduced to ⅔ of their weight.

*d. With Ferric Chloride* (5%).

| | |
|---|---|
| Mass No. II | 19 parts. |
| Ferric Chloride | 1 part. |

Dissolve the iron salt in a few drops of water, and proceed as before.

*e.* With Alum (2%).

| | |
|---|---|
| Mass No. III | 25 parts. |
| Distilled Water | 10 " |
| Alum | 0.7 " |
| Glycerin | 10 " |
| Distilled Water | 5 " |
| Evaporate to | 35 " |

Melt together the mass and the 10 parts of Dist. Water; then dissolve the Alum in the Glycerin and 5 parts of distilled water with the aid of heat, mix the solution with the melted mass while hot, and finally evaporate to 35 parts. (When the hot alum solution is mixed with the mass, the whole mixture coagulates and becomes viscid, but soon clears again, and becomes transparent, if it is cautiously heated on the water-bath, under careful stirring. The evaporating water must be replaced by fresh quantities of *boiling* water, until the mass is clear, when it may be evaporated as directed.

*f.* With Tannic Acid (2%).

| | |
|---|---|
| Mass No. II | 30 parts. |
| Glycerin | 8 " |
| Tannic Acid | 0.66 " |
| Evaporate to | 33 " |

Dissolve the Tannic Acid in the Glycerin, heat it, and add to the melted mass. Though this will coagulate the latter, yet it will become clear again if it is left for about ten minutes on the water-bath and slowly stirred. In this manner as much as 2 parts of Tannin may be united with 5 parts of Glycerin.

The resulting bougies are very easily soluble.

*g.* With Chloride and Salicylate of Sodium.

| | |
|---|---|
| Mass No. II | 30 parts. |
| Of each salt | the required quantity. |

Triturate the salts to a very fine powder, mix, and add to the melted mass.

The preceding cases may be regarded as types for a variety of combinations. Now and then it will be necessary to increase the proportion of one or the other ingredient.

The bougies prepared in the foregoing manner are all quite soft and elastic. If harder ones are required, Vomacka recommends to cut out a square strip of stiff jujube paste, of such a thickness and length that, when it is dipped into the melted mass, it will become coated and form a round bougie of the required size.

### II. SUPPOSITORIES.

These are usually prepared with mass No. II., yet it will be often necessary to modify the proportions so as to accommodate the medicinal ingredient. Gelatin suppositories should be somewhat more hard than bougies. If hygroscopic substances are to be incorporated with them, the mass should be as free from water as possible.

### III. VAGINAL SUPPOSITORIES

are best prepared with the same mass as bougies, and

### IV. EAR SUPPOSITORIES

with mass No. IV.

◆

**Terebene and the London Apothecaries.**—A correspondent of the *British and Colonial Druggist* says: "I am, as you are aware, 'connected with the trade'—the last word should perhaps have been 'profession,' but that will not affect the value of my narrative. Staying in London for a few days was a friend of mine, and as one evening this week we were investigating the mysteries of the metropolis it became apparent that his interest was beginning to flag. With the instinct of a pharmacist who may one day have to prescribe in order to pay his rent and taxes, I soon detected reflections of physical pain in the countenance of my companion. Ably following up the symptoms, I arrived at the truth—stomachic inflation. Good! Terebene indicated. Get some. To the nearest chemist we went. He was busy. Happy man! Five real customers in his establishment at one time. Not revealing 'my connection with the trade,' I modestly proferred a request for five drops of terebene in a little water. 'Terebene?' quoth the professional gentleman behind the counter. I assented. 'Terebene?' he repeated; 'what for?' 'Flatulency.' He smiled broadly. 'Terebene!' he continued. 'I've heard of Terebene Soap."' Again smiling in a manner which plainly meant 'I am a man of superior knowledge, but I'll give you another chance,' he inquired, 'Are you sure its *terebene?*' I was. Then came his thunderbolt. 'Why, terebene's a kind of turpentine. You don't want to take that internally.' I was crushed and we retired.

"We had an almost similar experience in the next pharmacy we went to, and I was there told we must be mistaken about the name. I must mean 'peppermint.'

"Three more establishments were visited, but none of them had terebene in stock. All these five pharmacies were in the W. C. district, and in selecting these to call at, I avoided, after my interview with the 'Terebene Soap Man,' several shops of inferior size as being unlikely places to get what I wanted."

**Petrolatum as a Hat Restorer.**—The *Scientific American* says: "When a hat becomes wet, or from other cause has lost its smoothness and gloss, cleanse it carefully from all dust, then with a silk handkerchief apply petrolatum evenly, and smoothe down with the same handkerchief until it is dry, smooth, and glossy. This will make a silk hat look as good as new."

**Fatal Effect of a Large Dose of Thallin.**—Prof. Ehrlich (*Münchener Med. Woch.*) reports fatal results in a case in which thallin tartrate was given in progressive doses of 1½ up to 9 grains. Besides the usual lesions of typhoid fever, the autopsy showed hemorrhagic infarctions of the renal papillæ, which are considered to be characteristic of poisoning by this drug. This danger may be avoided by fixing the maximum hourly dose at 3 grains. Heart-failure, from any cause, contra-indicates its employment, as well as the various forms of kidney disease and cases which resist the influence of small doses.

**Antipyrin** is spoken of in *The Medical Record* by Dr. T. S. Robertson as a very efficient remedy in migraine. He has tried it in 80 cases and in 54 the remedy acted favorably in from ½ to 2 hours, and in 15 the pain was much lessened. In 8 cases there was little or no effect. Twenty drinks were given in Vichy water, and repeated in two hours if needed.

**Steatite as a Dentifrice.**—Several years since, Mr. Paul Vigier, of Paris, discovered that the addition of powdered soap-stone to water in steam boilers prevented the deposit of lime salts. Applying this observation, he has devised a tooth-powder in which the powdered talc is expected to prevent the deposit of tartar. The formula is:

| | |
|---|---|
| Powdered talc | ʒ xv. |
| Dried alum (or cream of tartar) | ʒ i¼ |
| Powdered cochineal | ʒ iiss. |
| Essence of peppermint | gtt. xx. |

The *Gaz. Hebdomadaire*, *Lancet*, and *Philadelphia Med. News* publish this formula without comment, but it seems important to add that there is hardly a substance so harmful to the teeth, next to mineral acids, as alum, and the fact that powdered soapstone is in very general use by mechanics as an ingredient of substances intended to prevent friction in machinery, does not promise much for its use as a polisher of tooth enamel. Besides these objections, what is to be said for the use of 2½ *drachms* of cochineal?—ED. A. D.

**Tartaraline** is the name of a substitute offered for tartaric acid. It is simply bisulphate of potassium.

### The Cultivation of the Castor-oil Plant.*

According to a common saying, the castor-oil plant can be grown wherever Indian corn will grow. Yet this saying does not quite correspond with the facts, because, while it may accompany corn northwards as an ornamental plant, if the locality is favorable, its profitable cultivation is only possible in certain zones. In the United States, for instance, the northern limit is about the middle of Iowa, and as far as altitude is concerned, the castor-oil shrub remains from 2,000 to 3,000 feet below the level at which corn may still be raised. The castor-oil plant is not a food-plant like corn; its only value lies in its yield of oil; and the warmer its place of growth, the more oil will it yield. Hence it would be folly to expect large profits (if any at all) from the cultivation of the castor-oil plant in unsuitable localities.

The question of the applicability of any given locality for this cultivation, however, depends for answer upon still other conditions, besides atmospheric temperature. It is necessary to take into account the available moisture. In many parts of the subtropical zone the coldest period arrives at the close of the rainy season, which corresponds to the winter. This cold period must be allowed to elapse completely before sowing can take place. For neither corn nor the castor-oil shrub can stand the slightest frost, and their seeds rot in the ground unless the latter is thoroughly warm. This condition is not fulfilled until after the rainy season is over. Of course, where the natural rainfall is defective, artificial irrigation may be used, but this is never as effective as the former.

Before starting any plantation of the castor-oil plant, the amount of available moisture, either natural or artificial, must be thoroughly studied.

The castor-oil plant requires a very rich soil, if it is to yield an ample crop, as may be seen from the following composition of the ash of the seeds:

| | |
|---|---|
| Lime | 88.38 |
| Magnesia | 7.38 |
| Oxide of Iron | 0.89 |
| Phosphoric Acid | 38.65 |
| Sulphuric Acid | 2.21 |
| Chlorine | 0.89 |
| Potassa | 29.52 |
| Soda | 8.75 |
| | 100.00 |

Attention is called to the large amount of potassa, and particularly to the extraordinarily high percentage of phosphoric acid. The plant also requires a copious supply of nitrogen. Unless the cultivation is started on virgin soil, manuring can scarcely be avoided, though it would be useless to expect everything from artificial enrichment of the soil. The latter must be naturally adapted to it. It must, besides, be neither too loose nor too dense; neither stiff clay nor loose sand answer the purpose. A clayey sand- or sandy-clay bottom or alluvial ground is most conducive, provided it is of sufficient depth and porosity.

While it would be the most rational method to ascertain the capabilities and requirements of a soil by a chemical analysis of it, made from time to time—and this should be done if at all possible—yet in many cases this will be impracticable. It is, therefore, of advantage to know a manuring compound which is likely to furnish all the required constituents, without doing harm by the presence of one or another in excess. Such a compound is produced by a mixture of

| | |
|---|---|
| Cotton Seed | 750 parts. |
| Stable Manure | 750 " |
| Superphosphates | 500 " |

If cotton seed cannot be obtained, the following may be used:

| | |
|---|---|
| Cotton-seed Meal | 500 parts. |
| Stable Manure | 1,000 " |
| Superphosphate | 500 " |

These substances are to be made into a heap, under cover, and to be thoroughly moistened, in order to prevent overheating and to promote fermentation. After six weeks the mixture may be applied to the fields, from 1,000 to 3,000 pounds per acre, according as may be required. The soil must be turned deep, as the roots of the shrub penetrate to a considerable depth.

When the soil has been properly prepared, sowing may commence. This should be done in the beginning of the rainy season, except where frosts are to be expected near its end, in which case the beginning of the hot season must be awaited. The next question to be decided is which variety is most suitable for the locality. If the common species be employed, which usually grows to the height of about 8 feet in the subtropics, the plants must be placed at intervals of 4 feet in all directions. Under the tropics, the shrub grows 2 or 3 feet higher; the distance here must be 5 feet. If a still higher variety is chosen (such as *Ricinus sanguineus*), the distance should be extended to 8 feet.

In planting out on a large field, supposing the distance between the plant is determined at 5 feet, it is advisable to leave a space of 7 feet after every 5 rows of 5 feet apart, but only in one direction. This wider passage facilitates the harvesting.

The seed-beans are soaked for 12 hours in lukewarm water, then laid in pairs in the marked places, and covered with earth one inch high. As soon as the plants are 3 to 5 inches high, the weaker of the two plantlets is pulled out at every place. Sometimes 4 beans are planted at a time and the 2 weakest ones pulled out, but this is not to be recommended. If economy of space is necessary, it is better to put the plants closer together, rather than to duplicate them in one place.

The field requires only a repeated loosening of the soil with the cultivator, not with the plough, as this penetrates too deep and injures the roots. Hence, even the cultivator must be adjusted at a rather slight depth. How often this operation should be performed depends on the weather. Four repetitions are usually sufficient. Of course, the soil in the immediate vicinity of the plant must be loosened with the hoe or rake.

So far as known to the author, the castor-oil plant is only attacked by one insect, the same as infests the tobacco plant; all other insects shun it. In fact, the presence of the shrub appears to be a good agent to repel insects of all kinds. For this reason, probably, it is customary in some tropical districts to surround the field with several rows of castor-oil plants, a practice that appears to deserve imitation.

When the pods ripen, they turn brown, hard, and brittle, and begin to burst. All pods do not ripen on the plant at the same time, but the ripening process proceeds from below upwards. Hence the harvesting must be done in several instalments. For this purpose it is quite customary to use a sort of sled, drawn by a docile horse or other animal, which is guided through the wider passages of the field, while the ripe capsules are collected at either side of it and thrown into the box of the sled. A smooth ground is previously prepared at a suitable place in the neighborhood, and surrounded by a board fence 4 to 5 feet high. Upon this place, which must be exposed the greater part of the day to the hot rays of the sun, the capsules are piled to a depth of 3 to 4 inches, and turned over with a shovel once each day. With favorable weather, the capsules burst completely in 4 or 5 days. In order to separate still adhering seeds, a very light roller, drawn by an unshod horse, is rolled several times over the ground, the capsules being turned over before each new circuit.

The capsules and beans are then put in one heap, and the latter separated from the former by a winnower or by means of throwing with a shovel.

The ground having been cleared, it is ready for the next crop, and this is continued until the harvest is over. The shrubs are then cut down and put in the compost heap.

The clean beans are finally put in bags, and sold to the miller.

In the East Indies, the oil is extracted by crushing the beans between two rollers, the mass is packed into hempen sacks, and expressed by a screw-press. The oil is mixed with water, and the latter raised to boiling. This causes the impurities to rise to the top. The oil is next strained, bleached by exposure to the sun, and transferred into casks. In Oudh, the crushed beans are boiled with water, and the oil which rises to the surface gradually dipped off.

In the United States, the usual process followed is to expose the beans in an oven for an hour to a dry heat, which has been found to facilitate the extraction of the oil. They are next transferred [in bags] to a strong screw-press, and the oil, as it runs out, immediately mixed with an equal measure of water. The mixture is boiled for an hour, which causes the coagulation and separation of the albuminoids contained in the oil. After cooling, the oil is drawn off and transferred to large zinc tanks, in which it remains eight hours. Finally, it is exposed to the sun to bleach. One hundred pounds of beans yield about 18 quarts of oil. The finest oil is obtained by a process, which, according to the author, is only partially known. The beans are first passed through rollers in which their peel or skin is taken off, which contains an oil of disagreeable taste. They are then crushed, and either cold-pressed or extracted with alcohol. The oil is finally purified by contact with acids, and the final product is a fine, clear, nearly colorless oil, almost devoid of odor and taste.

◆

**Cali Nuts**, according to Mr. Merck, are seeds resembling the Calabar bean, and, like the latter, come from the western coast of Africa. Their origin is not known, but they appear to be derived from a *papilionaceous* plant of the tribe *Phaseoleæ*. In appearance they are rounder than the Calabar bean, the latter being always longer than it is broad. The alkaloid obtained from cali nuts has effects similar to physostigmine.—*Pharm. Journ.*

**New Local Anæsthetic.**—A crystalline substance has been obtained in minute quantities from the rind of pomegranates, which, when placed on the tongue or other portions of the mucous membrane, paralyzes local sensation after the manner of cocaine.

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* Extract from the valuable work: "Die Tropische Agricultur. Ein Handbuch für Pflanzer und Kaufleute," von Heinrich Semler in San Francisco. Vol. II., 8vo, Wismar, 1887.

**Analysis of "Temperance Drinks."**—The chemist of the Massachusetts State Board of Health has recently analyzed a large number of so-called temperance drinks, and has found that all of them contain alcohol, one of them containing as much as 44.3 per cent. Several of them contain more than 40 per cent, and a very large proportion more than 20 per cent. One of these is said by its manufacturer to be "a purely vegetable extract, stimulus to the body without intoxicating." "Inebriates struggling to reform will find its tonic and sustaining influence on the nervous system a great help to their efforts." This preparation was found to contain 41.6 per cent of alcohol.

*Tonics.*

Carter's Physical Extract, Georgetown, Mass., 22 per cent.

Hooker's Wigwam Tonic, Haverhill, Mass., 20.7 per cent.

Hoofland's German Tonic, Philadelphia, 29.3 per cent.

Hop Tonic, Grand Rapids, 7 per cent.

Howe's Arabian Tonic, New York, 13.2 per cent.

Jackson's Golden Seal Tonic, Boston, 19.6 per cent.

Liebig Company's Coca Beef Tonic, New York, 23.2 per cent.

Parker's Tonic, New York (advertised as without stimulants), 42.6 per cent.

Schenck's Sea Weed Tonic, Philadelphia, 19.5 per cent.

*Bitters.*

Atwood's Quinine Tonic Bitters, Boston, 29.2 per cent.

Atwood's Jaundice Bitters, Portland, 22.3 per cent.

Baxter's Mandrake Bitters, Burlington, 16.5 per cent.

Baker's Stomach Bitters, New York, 42.6 per cent.

Brown's Iron Bitters, Baltimore, 19.7 per cent.

Burdock Blood Bitters, Buffalo, 25. 2 per cent.

Carter's Scotch Bitters, Georgetown, 17.6 per cent.

Colton's Bitters, Westfield, 27.1 per cent.

Drake's Plantation Bitters, New York, 33.2 per cent.

Flink's Quaker Bitters, Boston, 21.4 per cent.

Goodhue's Bitters, Boston, 16.1 per cent.

Hartshorn's Bitters, Boston, 22.2 per cent.

Hoofland's German Bitters, Philadelphia (claimed to be free from all alcohol), 25.6 per cent.

Hop Bitters, Rochester, 12 per cent.

Hostetter's Stomach Bitters, Pittsburgh, 44.3 per cent.

Sulphur Bitters, Boston (contains no sulphur), 20.5 per cent.

Langley's Bitters, Boston, 18.1 per cent.

Mexican Tonic Bitters, Boston, 22.4 per cent.

Porter's Stomach Bitters, New York, 27.9 per cent.

Bush's Bitters, New York, 35 per cent.

Sherry Wine Bitters, Wakefield, 47.5 per cent.

Cinchonia Bitters, Providence, 13.1 per cent.

German Bitters, Concord, 21.5 per cent.

Strengthening Bitters, New Bedford, 29 per cent.

Old Continental Bitters, Lynn, 11.4 per cent.

Walker's Vinegar Bitters, New York, 6.1 per cent.

Warner's Safe Tonic Bitters, Rochester, 35.7 per cent.

Warner's Bilious Bitters, Boston, 21.5 per cent.

Wheeler's Tonic Sherry Wine Bitters, Boston, 18.8 per cent.

Wheat Bitters, New York, 13.6 per cent.

Faith Whitcom's Nerve Bitters, Boston, 20.3 per cent.

Williams' Vegetable Jaundice Bitters, Lowell, 18.5 per cent.—*Boston Med. and Surg. Journal.*

**Adhesive Plaster.**—Dr. Addinell Hewson recently gave a description of a method of preparing adhesive plaster: Bookbinders' paste, which in its pure and clean state is simply a wheaten flour paste, made in a porcelain crock by boiling thoroughly one part of flour in three or four parts of cleanly filtered water, always for twenty minutes, stirring the mixture all that time by a clean, new wooden or bone spatula, is applied by a thin strip of wood directly to the bare, clean integumentary surface of one of the edges which are to be secured, and then one end of a strip of gauze is to be laid on it and rubbed gently and smoothly so that the paste will come through its meshes. It should be applied no nearer the edge of the wound than collodion would be. It dries as quickly as the latter, and has, indeed, the advantage of always drying fast, even on a moist or dampened surface—a property wanting in liquid glass as well as glue, even where expedients have been previously used to dry the parts. When the end of the strip first applied is fixed by the paste, some of the latter is to be put on the other side of the wound, and the gauze strip drawn smoothly across it and pressed on that side, the surgeon watching the contact of the lips as to how well it is secured, rectifying any irregularity to be seen through the meshes by a probe. Sometimes in a long wound it may be advisable to secure the initial extremities of the gauze strips alternately on both sides. On other occasions it may be better to fix them on one side and draw all by their free extremities across, and so get equal amount of traction and tension in that way. The paste, when made strictly according to the directions I have given, and kept covered in a dry place, will not sour, and such paste can be made the vehicle of various kinds of antiseptics and disinfectants. By the addition of a small quantity of corrosive sublimate (one grain to a pint) immediately after it is fully boiled, it effectually prevents the germination and development of various kinds of microbes wherever it may be applied.—*The Polyclinic.*

### Note on the Assay of Opium.

Messrs. Adrian and Gallois have published a short paper on the assay of opium in the *Arch. de Pharm.*, 1887, 147, in which they describe a method of taking fractions of the liquid extract mixed with the opium, which is calculated to avoid the error liable to be committed under ordinary circumstances, and which error has formed the subject of much previous discussion (see also this journal, 1886, 203; 1887, 12). We shall give their method of assay in outline, premising the remark that we do not believe it to be sufficiently expeditious for practical use, but yet distinguished by the special feature alluded to.

A sufficiently large amount of the opium to be assayed is thoroughly mixed so as to represent a perfectly homogeneous sample. Of this, 5 grammes are taken and triturated with 50 Gm. of alcohol of 70 per cent. After 12 hours, the whole is transferred to a tared filter, and the marc *exhausted* with more of the same menstruum. The residue is dried and weighed. It constitutes the quantity of matter insoluble in the menstruum contained in 5 Gm. of opium.

At the same time, when the preceding process is started, 50 Gm. more are taken from the same original well-mixed sample, transferred to a glass-stoppered bottle, and 200 Gm. of alcohol of 70% added. The stopper having been inserted, the bottle is placed in a warm position, at a temperature of 77° to 86° F. When the exhaustion of the 5 Gm. is completed, the amount of insoluble matter present in the 50 Gm. is calculated from the result previously obtained. A quantity of alcohol of 70% equivalent to this amount of calculated insoluble matter is then added to the flask, which will then contain a quantity of extractive and of water (from the opium), and of alcohol, weighing 250 grammes.

Supposing an opium had been operated on, 5 Gm. of which, when exhausted with the kind of alcohol mentioned, leave 2 Gm. of dry residue. The other 3 Gm. then represent the water and soluble matter in the opium; 50 Gm. of the same opium, therefore, contain 20 Gm. of insoluble matter. According to the authors, the flask is made to contain

50 Gm. of the opium,
200 Gm. of alcohol,
and to this is finally added
20 Gm. more of alcohol,

hence, if it were possible to separate the final liquid solution completely from the insoluble portion, we would obtain

20 Gm. of insoluble residue from the opium, and
250 Gm. of solution.

The liquid is allowed to macerate with the opium until it has thoroughly extracted all soluble matter, after which it is allowed to become cold. Finally the flask is tared, any loss by evaporation restored, and the liquid filtered with precautions against loss. There will now exist a definite relation between the liquid and the original opium. For instance, 200 Gm. of the filtrate will correspond exactly to 40 Gm. of the original opium.

The idea of thus making up the insoluble residue in the mixture by an equivalent amount of the menstruum is capable of practical application elsewhere. We believe the above-described method can be much shortened with retention of this feature.

**Absorbent Canton Flannel.**—England, in describing antiseptic dressings which he prepares for use in the Philadelphia Hospital, describes as follows his preparation of canton flannel:

Under this term we use, in the Philadelphia Hospital, a canton flannel rendered absorbent by boiling in a 3 per cent solution of caustic soda for 1½ or 2 hours, until all the fatty matter in the fibres is decomposed, then washing in several portions of cold water, then macerating for 10 or 15 minutes the product in a 1.5 per cent solution of hydrochloric acid, whereby any traces of free soda are neutralized, and the fibres of the goods are whitened; and, lastly, followed by several washings in water, wringing out with a machine and drying. This product has been found to be peculiarly serviceable in hospital practice as a cheap, efficient, and reliable substitute for all the minor cases for which at present the so-called patent lint is generally demanded; for example, in local applications of lotion of lead-water and laudanum, and as a dressing with various ointments upon chronic sores, ulcers, etc. The proof of its utility may be inferred from the fact that while we used, during 1886, 1,500 yards of patent lint, we used also 2,500 yards of this absorbent canton flannel. In cost it is almost one-half of that of patent lint.—*American Journal of Pharmacy*, April, 1887.

**Glycozone**, a recently introduced disinfectant, is said to consist of glycerin with 4% of ozone [more probably peroxide of hyrogen.—Ed. Am. Dr.].

## QUERIES & ANSWERS.

*Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer, for the information of the editor, but not for publication.*

### Correction.

In our reply to Query 1,937 we quoted Atkinson's "Fabrikation der ætherischen Oele," and mentioned its *second* edition. This was an error, committed by a fault of memory. Our own copy is the first edition and there is no second in existence. There is, however, a second edition of Atkinson's "Parfümerie."

No. 1,943.—**Antiseptic Gauzes** (W. A. B., New Orleans; and J. S. W., Cleveland).

You will find notes on the preparation of these dressings in our last April number, p. 78; and in various preceding volumes, for instance, 1885, 177; 1884, 21, 235, etc., etc. (see the indexes). You will also find notes on the subject in the present number.

No. 1,944.—**Plummer's Powder** (E. S. W.).

This is a compound powder intended to represent the well-known Plummer's Pill. It is used by physicians in some parts of Germany. In the latest edition of the Formulæ Magistrales Berolinenses, the following formula is given (translated into our weights):

| | | |
|---|---|---|
| Calomel | gr. | 4 |
| Sulphurated Antimony | " | 4 |
| Sugar | " | 36 |
| Althæa, powdered | " | 16 |
| | gr. | 60 |

Divide into 12 powders.

No. 1,945.—**Wilkinson's Ointment** (E. S. W.).

The composition of this is as follows:

| | | |
|---|---|---|
| Sublimed Sulphur | ½ | oz. |
| Tar | ½ | " |
| Green Soap | 2 | " |
| Lard | 2 | " |
| Pumice Stone, pd | ⅓ | " |

No. 1,946.—**General and Applied Chemistry** (J. D'E., Quebec).

There are many large treatises on general and applied chemistry in the French language. As the most recent ones are generally the most desirable, provided they are written by competent authorities who are masters of the subject, we will quote only one, which has recently appeared: "Traité de Chimie générale, analytique et appliquée." Par Raoul Jagnaux. 4 vols., 8vo (illust.). Paris: (Octave Doin) 1877; 48 francs.

No. 1,947.—**Oiled Silk** (J. E.).

This correspondent states that the formula for making oiled silk, given in reply to query 1,865 (in February number), works satisfactorily, but "he cannot get it smooth and glossy." He would like to know how this may be accomplished.

So far as we know, this is brought about by passing the fabric between heated rollers, a piece of damp but very smooth fabric being passed on either side of the oiled silk. We have not seen this ourselves, but give it on the authority of one who has made oiled muslin in this manner. The same person also tells us that the composition of the mixture with which the muslin or silk is coated requires alteration, according as the finished fabric is to be used in a cold or in a warm climate, or in winter or summer.

It will only be necessary for you to experiment in order to get at the secret of producing the desired result.

No. 1,948.—**Removal of Copper from Extracts** (W. S. G.).

We are asked: "How may copper be removed from extracts which have become contaminated with it by being made in untinned copper vessels?"

There are several ways to accomplish this, but in all cases it is necessary to redissolve the extract in the menstruum originally used in this preparation before attempting the removal of the copper. In some cases, it is possible to effect the latter by electrolysis, without spoiling the product. But as the withdrawal of the copper is, to a certain extent, dependent upon the introduction of another though perhaps less objectionable metal, it is preferable to employ some reagent which will precipitate the copper.

A small portion of the filtered solution of the extract is taken and mixed with a small quantity of dilute solution of ferrocyanide of potassium. After awhile, a piece of bright steel is immersed into the liquid, and if this presents any traces of a coating of metallic copper when withdrawn, a little more of the reagent is added. This is continued as long as any reduction of copper is observable. The whole solution of the extract is then treated with the calculated amount of ferrocyanide, the liquid filtered, and finally evaporated again to an extract.

No. 1,949.—**Caffeine** (M. Ch.).

We have heretofore stated that caffeine is at present probably not made in this country at all. In fact, we are informed that no caffeine has been made here for years, though now and then sporadic attempts have been made to prepare it. All the caffeine or theine of the market are made from one and the same source, usually *tea*, the refuse of tea warehouses, or lots of tea damaged by salt water, etc., being utilized for this purpose when they are available. There is no trouble about extracting the caffeine; the only difficulty is to deprive it of the last trace of coloring matter. A very good process is that once proposed by Dragendorff, and recently again recommended in a slightly modified form by A. Lösch:

Boil tea-leaves twice with water, filter the extract, and wash the residuary leaves with boiling water until this runs off colorless. Unite the liquids, mix it with a quantity of calcined magnesia, corresponding to 1½ times the weight of the tea-leaves, and evaporate in the water-bath. Rub the residue to a fine powder, and extract it with hot chloroform. Recover the chloroform by distillation, redissolve the residue in boiling diluted alcohol, mix it with freshly ignited animal charcoal, filter boiling hot, washing the charcoal with enough of the menstruum, and allow to cool, when the caffeine will crystallize. Large, fine feathery crystals are best obtained by dissolving the previous residue in boiling water instead of diluted alcohol.

No. 1,950.—**Vulpius' Morphine Reaction** (Yale).

This reaction has been published only recently. It suggested itself to Dr. G. Vulpius through the action of sulphuric acid and an arseniate upon morphine, which was discovered some time ago by Donath (see AMER. DRUGG., 1886, 154). Arseniates and phosphates having so many characteristics in common, Dr. Vulpius tried a phosphate, and found that this answered the purpose. He describes the modus operandi as follows:

If to a few drops of a solution containing at least ½ milligramme of a morphine salt (or to at least the same quantity of the salt, *dry*), there are added, in a porcelain capsule, about 6 drops of concentrated sulphuric acid, then a few centigrammes (from ⅙ to ½ grain) of phosphate of sodium, and the capsule warmed over the flame under constant rotation until white fumes are emitted, the contents of the capsule will assume a violet tint, and if quickly cooled, the liquid will have the appearance of syrup of violets. If the heat is continued a little longer, the color will turn to brownish. On adding water, drop by drop, to the cold mixture, a bright red color will at first be produced, which is changed to dirty green as soon as the quantity of water reaches 3 to 5 grammes. On shaking the mixture now thoroughly with an equal weight of chloroform in a test-tube, the chloroform will, after separation, be found to have acquired a fine blue tint. By this behavior the present reaction is sharply distinguished from the ferric chloride reaction. The latter also produces a blue color in morphine solutions, but the color is not taken up by chloroform, the latter remaining absolutely colorless.

What the nature of the blue color is, we are unable to say. It may be assumed, however, that the morphine molecule is at least partly decomposed, and that some of the resulting derivatives are veritable coloring matters, varying in their solubility according as they are acids or bases or salts, or according to the nature of the menstruum. In the case of the phosphate reaction, where there is considerable free acid present, the coloring matter is probably of an acid nature, and is evidently soluble in chloroform; probably also in other volatile liquids of allied properties. In the case of the ferric chloride reaction, the colored compound is more likely to be of a neutral character, as it is rendered colorless or prevented from forming in presence of an acid.

No. 1,951.—**Haustus Ferri Sulphatis** (Supplement to Query 1,942).

We have received several communications on this subject, of which we can only print the salient portions.

One correspondent writes as follows:

"Haustus (recte *Haustum!*) is the Latin name for drink, potion, beverage." Haustum ferri sulfurici is prepared, as far as I remember, after the following formula in some parts of Germany, England, etc.:

| | |
|---|---|
| Ferri Sulphatis Puri | ℈ i. |
| Acidi Sulphurici Diluti (1-5) | ℈ ij. |
| Aquæ Destillatæ | q. s. ad fl. ℥ 8. |

We are obliged to our correspondent for the information, but desire at the same time to state that we claim to be better acquainted with Latin than he. *Haustus* is perfectly correct; there is no such noun as *haustum*. *Haustus* belongs to the large class of substantives of the 4th declension, formed from verbs by the affix *-us*, (or -tus) which may be regarded as the declinable noun-formation corresponding to the supine. All these nouns express the action of the verb: *haurio*, to imbibe, etc.; *haustus*, the act of imbibing; *utor*, to use; *usus*, the act of using, the use. Then many of them are applied to the *object* of the action of the verb, f. i. *haustus*, "the object of the imbibing" = "the drink," etc.

Another correspondent states that *Haustus ferri sul-*

*phurici* has at one time been used as a name of a dilute solution of sulphate of iron (otherwise called "Aqua Mineralis Marci," or Marcus' Mineral Water), used as a remedy in intermittent fevers accompanied with anæmia or decided leucæmia. The proportions were about:

| | |
|---|---|
| Ferri Sulphatis | ʒ i. |
| Aquæ Destillatæ | fl. ℥ 16 |

We doubt whether either of the above was meant in the prescription mentioned under Query 1,942. However, it is much more likely that the first of the formulæ here quoted was intended than the second.

No. 1,952.—Inosit (San Francisco).

This variety of sugar occurs rarely in the urine of man or animals. It has now and then been met with in albuminuria and diabetes. Possibly it may occur oftener, but it is so rarely expected, or purposely looked for, that its rarity may only be apparent.

It is impossible to base any definite conclusions upon any reactions for inosit in urine or other complicated liquid. To recognize it, it must be isolated in as pure a condition as possible, and this may be done in the following manner:

Free the urine of albumin, if any is present, then reduce it to about ¼ of its volume, and precipitate it with just enough solution of neutral acetate of lead, filter and precipitate the warmed filtrate with just enough basic acetate of lead. Allow the mixture to stand quietly during 12 hours, then collect the precipitate upon a filter, wash it with water and decompose it with hydrosulphuric acid. Filter, and after some uric acid has crystallized out of the filtrate, filter again, evaporate to a very small bulk, and mix it, while boiling hot, with 3 to 4 times its volume of alcohol. If this produces a copious precipitate adhering to the glass, the hot alcoholic solution is simply poured off. But if a flocculent, not sticky precipitate is produced, the hot solution is passed through a filter and allowed to cool. If inosit crystals have separated after 24 hours, they are collected on a filter, and washed with a little cold alcohol. If no crystals have separated, however, the cold, clear, alcoholic filtrate is gradually mixed with ether, until a milky mixture is produced by shaking, after which it is set aside for 24 hours. An excess of ether does no harm and insures the complete precipitation of the inosit.

The best reaction for the identity of inosit is that of Scherer, which is not afforded by any other carbohydrate:

If a solution of inosit is evaporated, almost to dryness, upon platinum or in a capsule, together with a little nitric acid, the residue be afterwards moistened with a little ammonia and solution of chloride of calcium, and again cautiously evaporated to dryness, a bright, rose-red color is produced. According to Boedeker, the addition of ammonia, in this test, is rather detrimental than beneficial. In many cases the residue turns brown under the influence of ammonia; without ammonia, it turns rose-red. If the color does not make its appearance at once, the heat should be continued for some time.

No. 1,953.—**Nickels' Improved Funnel** (Several inquirers).

We have given Mr. Nickels' address on page 81 of our last number, and have no doubt he will respond to any inquiries that are directed to him. Meanwhile, we will quote a few passages from a communication we have received from him on the subject.

"In addition to the advantages of quick filtration, washing, drying, etc., set forth in the previous description, there are two very important advantages possessed by these funnels, namely:

1. *Dialysis.*

This most important operation, as usually conducted is tedious and troublesome, owing to the difficulty o forming a tight joint between the parchment paper and the hoop containing the liquid to be dialyzed. Here all that is necessary is to attach a piece of rubber tube with stop-cock attached to the end of funnel, cut the parchment paper as a filter paper, placing the same in the funnel, and filling it with the liquid to be dialyzed. The jacket between the two funnels is filled with distilled water, which, as it becomes charged with the products of diffusion, can be run off, and a fresh supply introduced, thus minimizing the quantity of water, a *most important feature* in this operation.

2. *Filtration of Volatile Liquids.*

The complicated apparatus to avoid loss by evaporation is well known; the operation, however, can be quickly and thoroughly conducted by means of these funnels; the funnel is "corked" into a flask or receiving vessel, filter paper inserted, and liquid introduced in the usual manner; the top of funnel is then covered with a disk of India-rubber (or some material not affected by the liquid), and surmounted with a disk of glass. As the filtrate runs into the receiving vessel, the displaced air from the latter finds its way into the jacket between the two funnels and thence through the holes of inner funnel at the top, allowing filtration to proceed uninterruptedly without any loss from evaporation.

No. 1,954.—**Preparation for Chapped Hands** (Maine).

This correspondent sends us a formula for a preparation for chapped hands, which has given him trouble. But as he does not state how he endeavored to combine the ingredients, we are unable to afford him any assistance. So far as we can judge by examining the formula, without experimenting, it appears feasible enough, except that the oil of sweet almonds appears to be rather small in amount:

| | |
|---|---|
| Almonds, Blanched | ℥ 1 |
| Rose Water | ℥ 6 |
| White Wax | ℥ 1 |
| Expressed Oil of Almonds | ℥ 2 |
| White Castile Soap | ℥ 1 |
| Honey Water (perfume) | ℥ 2 |
| Cologne | ℥ 1 |
| Glycerin | ℥ ½ |
| Oil of Bitter Almonds | gtt. 6 |

We would proceed in the following manner: Melt the wax and oil of sweet almonds (which will perhaps have to be increased in quantity) in a deep and rather narrow vessel; then add the soap, and allow to melt. Having blanched the almonds, beat them to a perfectly smooth milk with the rose water gradually added, strain through muslin, mix the strained liquid with the glycerin and pour the mixture slowly, and while briskly agitating (perhaps best by means of an egg-beater) into the melted wax, etc. When the mixture has cooled, add the perfumes in the same manner.

A very good preparation, among others, is said to be the following, published by E. Dieterich:

| | |
|---|---|
| Expressed Oil of Almonds | 1 lb. 4 oz. |
| White Wax | 8 oz. |
| Spermaceti | 8 oz. |
| Distilled Water | 10 oz. |
| Borax | 75 grains. |
| Cumarin | ¼ grain. |
| Oil of Bergamot | 30 grains. |
| " Rose | 8 " |
| " Bitter Almonds | 10 drops. |
| Tincture of Ambergris (1 : 10) | 5 " |

Melt the Wax and Spermaceti with the Expressed Oil of Almonds, allow to become nearly cold, and then stir until it becomes light and foamy. Now add the Water in which the Borax had previously been dissolved, and finally the other ingredients.

No. 1,955.—**Cultivation of Coriander** (Kentucky).

We are asked by one of our subscribers, who has occasion to use considerable quantities of coriander and its essential oil, whether it is not possible to carry on the cultivation of coriander successfully in this country, particularly as it is often difficult to get good coriander from abroad.

In reply we would state that we have no doubt whatever that this can be done, provided only that the expense of cultivation does not raise the cost of the product too high, which is a point for our correspondent to ascertain.

From a useful little work by G. A. Schoeller, on the cultivation of medicinal plants, published in 1843, we will give a few hints regarding the cultivation.

Coriander requires a loose clayey soil, rich in humus, rather moist, and free from weeds. The soil must be deep, as the roots penetrate to a considerable depth. The climate must be rather warm and even, and not too moist. In hilly districts it does not thrive. Coriander cannot bear a freshly manured soil, but prefers one containing rather old humus. But on poor soil, manuring with decomposed leaves, etc. (*not* stable manure) is very useful. It is best to let coriander follow a crop of clover or to choose a fallow field. Otherwise it may be grown after any kind of crop which does not exhaust the ground too much. It requires a good deal of nourishment itself, and drains the ground considerably, hence it can be followed only by such vegetables as do not require much nourishment. The ground must be worked over in the fall, as deep as possible, and carefully weeded. In the early spring it is raked over, and the seed (of best quality) sown as soon as the frost is out of the ground. Very commonly, coriander is sown together with carrots. If sown alone, the amount to be used is about one-fourth of that usually scattered when sowing rye. Coriander prefers moisture when young; later on, however, warm weather. At the end of July or beginning of August it ripens. As the seeds ripen unevenly, a proper period must be chosen when the largest portion of seeds are ripe. And since the seeds are so ready to fall out, it must be harvested early in the morning, after a fall of dew. It is cut off with sickles, and carefully put together in piles, with head up. The bundles are afterwards cautiously carried to a large cloth spread upon the field, and the seeds shaken out by beating bunches of the plant together. On an average an acre of ground yields 1,200 lbs. of coriander, but this may sometimes reach 1,500 lbs.

No. 1,956.—**Blue Prints** ("Inquirer").

When ferricyanide of potassium or *red* prussiate of potash comes in contact, in solution, with a *ferrous* salt (such as the green sulphate of iron), it produces an insoluble blue precipitate of "Turnbull's blue." With *ferric* salts, it only produces a greenish-brown solution, but no precipitate. If, however, the latter mixture be treated with a reducing agent, or is exposed to sun-light or even day-light, the *ferri* compound is reduced to a *ferro*, and a blue color or precipitate will appear. The gradual change of the ferricyanide to ferrocyanide can be noticed even in a plain aqueous solution of the salt, which, when old, will distinctly react with ferric salts, and produce more or less of a blue color or precipitate.

The process may be executed in the following manner, though the composition of the impregnating liquid may be variously altered.

| | |
|---|---|
| Ferricyanide of Potassium (Red Prussiate of Potash).. | 2 oz. |
| Citrate of Iron.............................. | 2 " |
| Distilled Water................................. | 24 " |

Dissolve each salt in one-half of the water, filter, and mix the two solutions in a room completely inaccessible to day-light, and only feebly illuminated by artificial (candle or gas) light. With this solution coat uniformly *one* side of sized paper of suitable dimensions. This may be done either by brushing the solution over it, or by floating the paper on the surface. It is then hung up to dry. But special care must be taken that no day-light will fall upon it during any part of the process. When it is dry, it may be rolled up and kept in tight tin boxes.

When this paper is exposed to day-light, it will gradually turn blue, in accordance with the explanation previously given. If any portion of its surface is prevented from being exposed to day-light, this portion will remain unaffected, and the mixture of the two salts dried upon it may be washed off, in the dark, so that when the paper is subsequently exposed to day-light, the portion just spoken of will have the natural color of the original paper.

The drawing that is to be copied must be made upon transparent or so-called tracing paper with as black and dense an ink as possible. India ink is the best. A proper printing frame must be provided, so arranged that the drawing may be firmly pressed upon the prepared paper without air-bubbles or creases.

It will not be necessary to describe the printing frame, except perhaps to say that it is on the principle of a picture frame, only that there is much more distance between the glass and the backboard of the picture.

Everything being ready, the printing frame is opened in the dark room, glass-face downwards. Upon the glass is laid the drawing with the tracing on the *upper* surface *not* on the glass side). Upon the drawing is laid, prepared side downward, a suitable piece of the prepared paper. Upon this is laid a pad of felt or paper, and the back of the frame is then put in and firmly fastened and pressed in place.

Before taking the frame out into day-light, it is, *under all circumstances*, necessary to reverse the frame, and to carefully examine the position and condition of the drawing. Sometimes it will happen that an air-bubble is inclosed, which, of course, would produce a blur upon the print, as the light will be able to get under dark lines, where it ought to have been stopped out. At other times, it may be found that the drawing has been displaced. Again, some foreign substance may have dropped in front. We can speak from experience, and can say that we have lost several good impressions by hurry, in the beginning of our amateur experiments. We have not lost any since.

If everything is satisfactory, take the frame out into the open air, and expose it, if possible, to sun-light. From five to ten minutes will be sufficient. If bright sun-light is not available, day-light will do, but then it may require hours to produce the desired effect. The proper time of exposure can be easily told from the appearance of the paper upon the exposed portions. It should have a dark greenish-blue, but not fully blue tint. If it attains the latter, it is generally overdone. At the proper time, the frame is carried back to the dark room, opened by gas-light, and the prepared paper immediately floated, face downwards, in a tank or other vessel of suitable size, containing pure water, the back of the paper being gently worked over by the ends of the fingers so as to facilitate the solution of the still adhering salts. On reversing the paper, it will be seen that all the greenish-blue exposed portion has turned a pure blue, and the non-exposed portion (covered by the drawing) will be *white*.

The print is then taken out of the tank, laid over a stick, washed with pure water and hung up to dry.

We have found it, in the long run, more economical to purchase the prepared paper ready-made than to make it ourselves. It is made by manufacturers in such quantities that they can sell at very small profit. Moreover, they have every facility for turning out a uniform and handsome product. We can recommend, as a source of supply, Messrs. Keuffel & Esser, of 127 Fulton street, New York.

Those who have much blue printing to do should procure an apparatus permitting absolute contact of drawing and prepared paper without risk of breaking the glass by pressure from the back. This is accomplished by an arrangement devised by Schleicher & Schüll, of Düren, Germany, in which the contact is brought about by a small air pump attached to the frame which exhausts the air from between drawing and paper. The prices of these printing frames, on foot with rollers, and complete, vary, according to size, from 60 to over 200 marks.

### Formulæ asked for.

1. *Pilulæ Anæstheticæ.* What is the composition?
2. *Rush's Lung Balm.*
3. *Palmer's Cosmetic Lotion.*
4. *Pike's Salt Rheum Salve.*

## CORRESPONDENCE.

### Strophanthus.

*The Editor American Druggist:*

SIR:—We notice on page 65 of your issue for April, 1887, an article upon Strophanthus, in which you refer to a "false Strophanthus" having made its appearance in the London market. As the specimen in question was imported by us and has been the subject of an interesting discussion amongst botanists, we think a short account of the seed will not prove amiss:

The seed was received by us last year from the west coast of Africa, and was labelled Strophanthus. Having submitted same to Mr. E. M. Holmes of the Pharmaceutical Society, and to Mr. Helbing, it was at first thought to be a Holarrhena or Wrightia; but after carefully examining it, Mr. Holmes found it to possess the characters of the genus Kickxia, of which two species only are described, one from Java and the other from Africa. These seeds, which were at first thought to be a Holarrhena, have now been named *Kickxia africana* Benth., and are being thoroughly examined by Professor de Burgh Birch as to their chemistry and physiology. We hear he has found an interesting alkaloid in them, upon which he will soon report. In No. 10, "New Commercial Plants and Drugs," we have given the following sketch of the seed, showing the curious manner in which the plume is attached to the seed. Though the seed itself somewhat resembles that of the Holarrhena or Wrightia, the fact of its possessing a plumose appendage attached to it does not permit of its belonging to the germs Holarrhena, in which the tuft of hairs is deciduous.

We may, in conclusion, say that we are giving every facility for the thorough investigation of this seed, and from what Prof. Birch has so far ascertained, the report may be looked for with interest.

Trusting we have not too much trespassed upon your valuable space, we remain, sir,

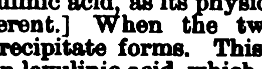
Yours truly,
THOMAS CHRISTY & Co.

P. S.—You will note that the plume is reversed; but the hairs fall back when it is freed from the pod.

25 LIME ST., LONDON, E. C., April 26th, 1887.

* * *

**Antithermine.**—A patent has been taken out in Germany for a new antipyretic and antiseptic, for which the above short title has been proposed by M. Nicot in *Nouveaux Remèdes*. It is prepared by dissolving phenylhydrazin in dilute acetic acid, and adding to this solution a solution of levulinic acid ($C_5H_8O_3$). [Acetopropionic acid is also mentioned by Nicot. This acid is considered identical with levulinic acid, as its physical properties are but slightly different.] When the two solutions are mixed, a yellow precipitate forms. This is antithermine or phenyl-hydrazin-levulinic acid, which has the formula,



$$C_6H_5NHN\left\{\begin{matrix}H\\C_5H_7O_2\end{matrix}\right.$$

It is purified by recrystallization from alcohol.—*Chem. and Drugg.*

**Infantile Constipation.**—A very successful remedy for this is podophyllin in small doses: iridin may be combined with good effect. Make a tincture of the following: Podophyllum resin, gr. viij.; iridin, gr. v.; spt. ammon. arom. ʒ i. Digest for several days, and filter. From one to two drops of this may be given at bedtime on a small piece of loaf sugar, or the dose may be combined in mixture along with syrup of orange. This is the dose for a child of one year and under. [Iridin is a "resinoid" of Iris versicolor.—ED. AM. DR.]

**Deterioration of Chlorinated Lime by Keeping.**—Pattinson has made a series of experiments to determine the ratio of deterioration which chlorinated lime undergoes on keeping either in casks or in bottles. He found that when the temperature did not exceed 16° C., chlorinated lime kept in casks, in a dry place, lost, on an average from 2 to 3 per cent of chlorine during a year. That kept in bottles lost somewhat less than 1 per cent.

## FORMULAS.

### Antiseptic Gauzes.

Though most of the antiseptic gauzes or dressings below mentioned are usually purchased from manufacturers, yet there are many pharmacists so situated that they could not obtain the desired supply in time for the occasion when it is to be used. They should, therefore, be able to prepare them when wanted. The following directions and formulæ, published in Dieterich's *Neues Pharmaceutisches Manuale** will supplement, or recapitulate, what we have said on the subject ourselves heretofore.

The crude material, viz., the absorbent gauze, is not easily prepared with advantage on the small scale, and had therefore always better be kept on hand in ample quantity.

All manipulations in making antiseptic dressings must be performed so that the products are homogeneously saturated, of known strength of important ingredients, of handsome appearance, and that their antiseptic effect will not be interfered with, or diminished.

When gauze is to be saturated, it is first necessary to know its own weight. After having been laid into the antiseptic liquid (which is prepared with reference to the weight of the gauze), it is kneaded in it for 15 to 20 minutes, and then expressed to a definite weight, so that the gauze will retain the amount of antiseptic material which it is intended to hold.

A good absorbent gauze usually retains, after strong pressure, 1¼ times its own weight of liquid. Hence 1,000 parts of absorbent gauze, after being soaked in a hydro-alcoholic solution, say of salicylic acid, will, after pressure, weigh 2,500 parts.

If large quantities are to be prepared, tubs lined with tinned iron may be used, except in the case of certain agents incompatible with iron, such as salicylic acid, in which case earthenware troughs are preferable. When small quantities are to be prepared, ordinary evaporating dishes may be used. If heat is required, a steam or water-bath is to be used. Pressing is done by an ordinary press, but care must be taken that the liquid is uniformly distributed through the mass. [We have found a common clothes-wringer to be the most suitable apparatus, in all cases where the liquid remained unaffected by the iron parts. —Ed. Am. Dr.]

If a certain amount of gauze is to be treated, without any liquid remaining over, the material is placed into the latter, kneaded for 10 or 15 minutes and then kept compressed by weights. By means of repeated turning over and pressure at a moderately high temperature (according to the nature of the menstruum), the liquid is evenly distributed through the fabric. Finally, the latter may be subjected to just so much pressure as it will stand without any of the liquid running out. The same method is used in the case of liquids which are prepared without the aid of inert solvents, such as Lister's eucalyptus or carbolized gauze.

To freshly prepare a few yards of any gauze, a supply of the corresponding liquid is kept on hand, the proper amount of absorbent gauze soaked in it, then laid in oblong form upon parchment paper, folded up in the latter, and passed through a press, enough pressure being applied to have it retain about 1¼ times its own weight.

In the case of alcoholic or aqueous solutions, the drying of the fabric may be done upon strings or wooden rods, but with fatty or ethereal fabrics it is better to wind them upon a wooden roller, upon which it is left for at least 24 hours, when it may be cut off as required.

1. *Benzoated Gauze* (Bruns, jr.)

| | 5% | 10% |
|---|---|---|
| | Parts. | |
| Benzoic Acid | 60 | 120 |
| Castor Oil | 25 | 50 |

*Or*,

| | | |
|---|---|---|
| Rosin | 12.5 | 25 |
| Castor Oil | 12.5 | 25 |
| Alcohol | 1,415 | 1,330 |
| Absorbent Gauze | 1,000 | 1,000 |

Saturate and express to a weight of 2,250 parts. Dry upon a reel.

2. *Borated Gauze.*

| | 10% |
|---|---|
| | Parts. |
| Boric Acid | 120 |
| Boiling Water | 1,380 |
| Absorbent Cotton | 1,000 |

Saturate hot, and express to a weight of 2,250 parts. Dry upon wooden rods or strings.

[To prevent the boric acid from dusting off, about 5% of glycerin may be mixed with the water; that is, 70 parts of glycerin and 1,310 parts of boiling water may be taken. Or, a small quantity of tincture of myrrh may be added to the liquid—merely enough to impart to it a slight adhesiveness when dried upon the fabric, without, however, interfering with the absorbent power of the latter.

3. *Carbolized Gauze* (Bruns, jr.).

10 per cent.

| | Parts. |
|---|---|
| Rosin | 450 |
| Castor Oil | 50 |
| (*or* Stearin | 100) |
| Carbolic Acid | 120 |
| Alcohol | 850 |
| Absorbent Gauze | 1,000 |

Saturate hot, and express to 5,250 parts. Dry during 24 hours upon a reel.

4. *Carbolized Gauze* (Lister).

| | 5% | 10% |
|---|---|---|
| | Parts. | |
| Carbolic Acid | 50 | 100 |
| Rosin | 500 | 500 |
| Paraffin | 700 | 700 |
| Absorbent Gauze | 1,000 | 1,000 |

Saturate at a temperature of 140% to 158°, pressing the gauze into the melted mass by weights. Then press for half an hour between warm plates and pack immediately.

5. *Acetate of Aluminium Gauze* (Burow).

| | 5% | 10% |
|---|---|---|
| | Parts. | |
| Solution Acetate Aluminium | 750 | 1,500 |
| Distilled Water | 750 | |
| Absorbent Gauze | 1,000 | 1,000 |

Saturate and express to a weight of 2,250 parts. Dry upon strings or wooden rods.

6. *Eucalyptus Gauze* (Lister).

4 per cent.

| | | |
|---|---|---|
| Oil Eucalyptus | 40 | *parts* |
| Damar Resin | 240 | " |
| Paraffin | 360 | " |
| Absorbent Gauze | 1,000 | " |

Prepare as in No. 4.

7. *Iodoform Gauze* (Mosetig).

| | 10% | 20% |
|---|---|---|
| | Parts. | |
| Iodoform | 100 | 200 |
| Ether | 700 | 1,200 |
| Alcohol | 700 | |
| Absorbent Gauze | 1,000 | 1,000 |

Saturate the gauze in either case with the solution, wrap it in parchment paper, weight it down for a few hours, then dry it on a reel.

If higher percentages are to be obtained, the prepared and dried gauze is drawn once or oftener through the fresh portions of the iodoform solution.

8. *Iodoform Gauze* (Billroth).

| | 20% |
|---|---|
| | Parts. |
| Iodoform, very fine powder | 200 |
| Absorbent Gauze | 1,000 |

Incorporate the Iodoform by means of a duster into the gauze, and rub it in dry, so as to divide it uniformly.

9. *Adhesive Iodoform Gauze* (Billroth).

50 per cent.

| | | |
|---|---|---|
| Iodoform | 500 | *parts*. |
| Rosin | 300 | " |
| Alcohol | 900 | " |
| Ether | 100 | " |
| Glycerin | 150 | " |
| Absorbent Gauze | 1,000 | " |

Dissolve the Rosin in the Alcohol and Ether, add the Glycerin, and saturate the gauze with this solution by means of kneading, and weighting it down for 2 or 3 hours. Then distribute the Iodoform over the gauze as uniformally as possible, wind it on a reel, and let it dry 24 hours.

If this gauze is to be prepared extempore, carbolized gauze may be used and the iodoform rubbed into it, each square yard requiring about 300 grains.

10. *Iodoform Gauze* (Woelfer).

20 per cent.

| | | |
|---|---|---|
| Iodoform | 200 | *parts*. |
| Rosin | 250 | " |
| Alcohol | 1,000 | " |
| Glycerin | 200 | " |
| Absorbent Gauze | 1,000 | " |

Dissolve the Rosin in the Alcohol, add the Glycerin, and saturate the gauze in the liquid by kneading and weighting down 2 or 3 hours. Then dust over it the Iodoform very uniformly, wind on a reel, and dry during 24 hours.

This may also be prepared extempore by using carbolized gauze and incorporating it in about 2 drachms per square yard.

11. *Naphthalin Gauze.*

20 per cent.

| | | |
|---|---|---|
| Naphthalin | 200 | *parts*. |
| Rosin | 100 | " |
| Alcohol | 1,200 | " |
| Absorbent Gauze | 1,000 | " |

Dissolve the solids in the Alcohol by the aid of a gentle heat, saturate the gauze in a warmed dish, weight it down, after three hours wind it on a reel, and dry for 24 hours.

Expressing the liquid is not practicable, as the naphthalin would crystallize out as soon as the temperature falls.

12. *Resorcin Gauze.*

10 per cent.

| | | |
|---|---|---|
| Resorcin | 120 | *parts*. |
| Glycerin | 120 | " |
| Distilled Water | 800 | " |
| Alcohol | 460 | " |
| Absorbent Gauze | 1,000 | " |

Dissolve the Resorcin in the liquids, saturate the gauze, and express to a weight of 2,250 parts.

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* The special attention of our readers is directed to this excellent Formulary. It contains many hundred carefully tested and practical formulas for preparing unofficinal medicines, toilet articles, inks, etc., etc., and should be in the possession of every pharmacist. Published by Julius Springer, of Berlin.

13. *Salicylic Gauze* (Thiersch).

| | 4% PARTS. | 10% |
|---|---|---|
| Salicylic Acid..... | 48 | 120 |
| Alcohol............ | 450 | 680 |
| Hot Water........ | 1 000 | 700 |
| Absorbent Gauze.. | 1,000 | 1,000 |

Dissolve the Salicylic Acid in the liquids, saturate the gauze, express it to 2,250 parts, and dry upon strings or wooden rods.

14. *Fixed Salicylic Acid Gauze* Bruns, jr.).

| | 5% PARTS. | 10% |
|---|---|---|
| Salicylic Acid......... | 60 | 120 |
| Castor Oil.. ....... ... | 25 | 50 |
| *or* Rosin ........ | 12.5 | 25 |
| Castor Oil........ | 12.5 | 25 |
| Alcohol................ | 1,415 | 1,330 |
| Absorbent Gauze...... | 1,000 | 1,000 |

Proceed as in No. 1.

15. *Sero-Sublimate Gauze* (Lister).

| | | |
|---|---|---|
| Bichloride Mercury.... | 6 | *parts.* |
| Horseblood Serum ... | 600 | " |
| Distilled Water....... | 900 | " |
| Absorbent Gauze...... | 1,000 | " |

Mix the Serum and Water, dissolve in it the Bichloride by trituration, filter, saturate the gauze with the filtrate, express to 2,250 parts and dry upon strings or wooden rods, avoiding exposure to daylight during the operation.

As horseblood serum is not always available, Diederich recommends as a substitute his solution of albuminate of mercury. The above formula would then become:

| | | |
|---|---|---|
| Bichloride of Mercury. | 6 | *parts.* |
| Chloride of Sodium... | 6 | " |
| White of Egg..... ... | 30 | " |
| Distilled Water....... | 1,460 | " |
| Absorbent Gauze...... | 1,000 | " |

Dissolve the salts by trituration in the White of Egg previously well beaten and allowed to return to a liquid condition, then dilute with the water, and proceed as in the preceding formula.

Another substitute for horseblood albumen is afforded by the commercial dried blood albumen. Ten parts of this may be reckoned as equivalent to 100 parts of the serum; hence the 600 parts of serum will be represented by a solution of 60 parts of dry blood albumen in 540 parts of water.

16. *Sublimate Gauze* (Bergman).
⅙ per cent.

| | | |
|---|---|---|
| Bichloride of Mercury, | 4 | *parts.* |
| Glycerin ............. | 150 | " |
| Alcohol .............. | 150 | " |
| Distilled Water....... | 1,200 | " |
| Absorbent Gauze...... | 1,000 | " |

Dissolve the Bichloride in the liquids, saturate the gauze, and dry on strings or wooden rods, avoiding exposure to daylight.

17. *Sublimate Gauze* (Maas).

| | ¼% PARTS. | ½% |
|---|---|---|
| Bichloride Mercury..... | 2.5 | 5.0 |
| Chloride Sodium........ | 500 | 500 |
| Glycerin................ | 200 | 200 |
| Dist. Water............ | 1,200 | 1,200 |
| Absorbent Gauze. ...... | 1,000 | 1,000 |

Knead the Gauze in the solution, weight it down during a few hours, and dry upon strings or wooden rods with the exclusion of daylight.

18. *Sublimate Gauze* (German Army).

| | | |
|---|---|---|
| Bichloride Mercury... | 50 | *parts.* |
| Alcohol ............. | 5,000 | " |
| Distilled Water...... | 7,500 | " |
| Glycerin ............ | 2,500 | " |
| Fuchsin.............. | ½ | part. |

Saturate with this solution such an amount of gauze that each square yard will contain about 2 grains of bichloride. After soaking, the gauze is drawn through a wringer, and dried as in No. 14 or 15. The object of coloring is to facilitate the identification of the sublimate gauze.

19. *Thymol Gauze* (Ranke).
1.6 per cent.

| | | |
|---|---|---|
| Thymol ... ......... | 16 | *parts.* |
| Rosin .... .......... | 50 | " |
| Spermaceti........... | 500 | " |
| Alcohol.............. | 1,500 | " |
| Absorbent Gauze... .. | 1,000 | " |

Dissolve with the aid of a gentle heat, saturate the gauze, weight it down a few hours, then wind on a reel, and dry during 24 hours.

20. *Sulphocarbolate of Zinc Gauze* (Bottini).
10 per cent.

| | | |
|---|---|---|
| Sulphocarbolate Zinc.. | 100 | *parts.* |
| Hot Water.. ........ | 1,500 | " |
| Absorbent Gauze...... | 1,000 | " |

Saturate the Gauze with the solution, weight it down a few hours, then dry on strings or wooden rods.

## BIBLIOGRAPHY.

A Manual of Weights and Measures, including the Principles of Metrology; the Weights and Measures now in Use; Weight and Volume and their Reciprocal Relations; Weighing and Measuring; Balances (etc.). . . . Specific Weight and Specific Volume, etc. With Rules and Tables. By Oscar Oldberg, Pharm.D., Professor of Pharmacy (etc.). in the Illinois College of Pharmacy (etc.). Second ed., revised. 8vo, Chicago: 1887.

The utility of this Manual is sufficiently shown by the fact that the first edition was so soon exhausted. It is certainly the most complete treatise on the subject existing in any language, everything being brought together here that has any bearing on the subject. The numerous tables of comparison between different standards of weights and measures, or different denominations of either, together with tables of specific gravity and other useful data, render the book an indispensable companion in the laboratory and at the desk. The author, as is well-known, has proposed a new system of pharmaceutical weights and measures, with a view of combining the advantages of the metric system, or establishing a certain harmony and correlation, with that to be used by physicians and pharmacists, which is at the same time to be so constructed that the units of weight are commensurable with those of measure, and so that the larger denominations may be divisible by 2 without fraction down to the lowest unit. The author was perfectly justified in explaining the details of his plan in the work, and we readily acknowledge its intrinsic merits. But we have no expectation that it will be adopted.

Dose and Price Labels of all the Drugs and Preparations of the U. S. Pharmacopœia of 1880, together with many unofficinal articles that are frequently called for [etc.]. *Second Edition.* Rewritten and thoroughly revised and enlarged, with an appendix, containing . . . many of the New Remedies lately introduced. By C. L. Lochman, Philadelphia, 1887.

Mr. Lochman, who is well known to the profession as the translator of the German Pharmacopœia, and as the author of the Photographic Illustrations of Medicinal Plants, has rendered a signal service by preparing a new edition of his excellent labels. We can conceive of no better practical method to afford a ready reference to the whole staff of a pharmaceutical establishment than the plan of affixing to each container the corresponding label taken from this series. Each label gives all the information and instruction that is likely to be required at a moment's notice, including derivation or outline of preparation, definition, synonyms, practical hints for the dispenser, medical properties and uses and average doses. The employment of these labels, when permanently attached to the bottles and other containers in a pharmacy, will save much valuable time which would otherwise be consumed in searching for the desired information in the pharmacopœia, the dispensatories, and other works of reference. These are, of course, not rendered indispensable, but the data most generally required will be those available by merely handling the container.

The appendix contains all necessary details regarding the newer remedies and a very carefully prepared index facilitates reference.

There can be no better investment made than the purchase of at least two copies of this work by each proprietor of a pharmacy, one copy to be kept for reference, and the other to be cut up for the purpose of attaching the labels to the various receptacles.

Report of the Committee on Disinfectants, presented at the Fourteenth Annual Meeting of the American Public Health Association, held at Toronto, Canada, October 5th-8th, 1886, pp. 33, 8vo.

This report is very profusely illustrated with drawings of various appliances intended for the disinfection of clothing, bedding, and articles of commerce, to which the text chiefly relates.

Sanitary Engineering. By William Kane, C.E., Former Member of the North Carolina Board of Health. Third edition. Rhaleigh, pp. 90, 8vo.

While this pamphlet is essentially a part of the report of the State Board of Health for 1885 and relates more particularly to local conditions, it, nevertheless, contains a large proportion of matter capable of general application and a knowledge of which is extremely desirable.

A Manual of the Diseases of the Skin. By Balmanno Squire, M.B. Lond., Surgeon to the British Hospital for Diseases of the Skin. Fourth smaller edition. London: J. & A. Churchill, 1887, pp. 194, 8vo.

The author is known as an eminent authority in dermatology and the results of his experience render his writings of great value. We have already had occasion to make favorable comments upon former editions of this work which is well adapted to the purpose intended, namely, as a concise handbook.

The Uses of Massage in Medical Practice. Translated from the German of Reibmeyer, with notes. By Benjamin Lee, A.M., M.D., Ph.D., etc. Philadelphia: 1887, pp. 44 & 22, sm. 8vo.

This interesting pamphlet contains also an essay on "Blood, and How to Make It; Fat, and How to Reduce It," and bibliographical references to recent works on massage.

Report of the Committee on Disinfectants. Presented at the Fourteenth Annual Meeting of the American Public Health Association. pp. 33, 8vo.

This paper describes a great variety of apparatus invented for commercial disinfection.

Thirteenth Annual Report of the Council of the Pharmaceutical Society of Australia, with which is incorporated the Pharmaceutical Society of Victoria. 1887, pp. 15, 8vo.

# American Druggist

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## A NEW LABORATORY TROMP.

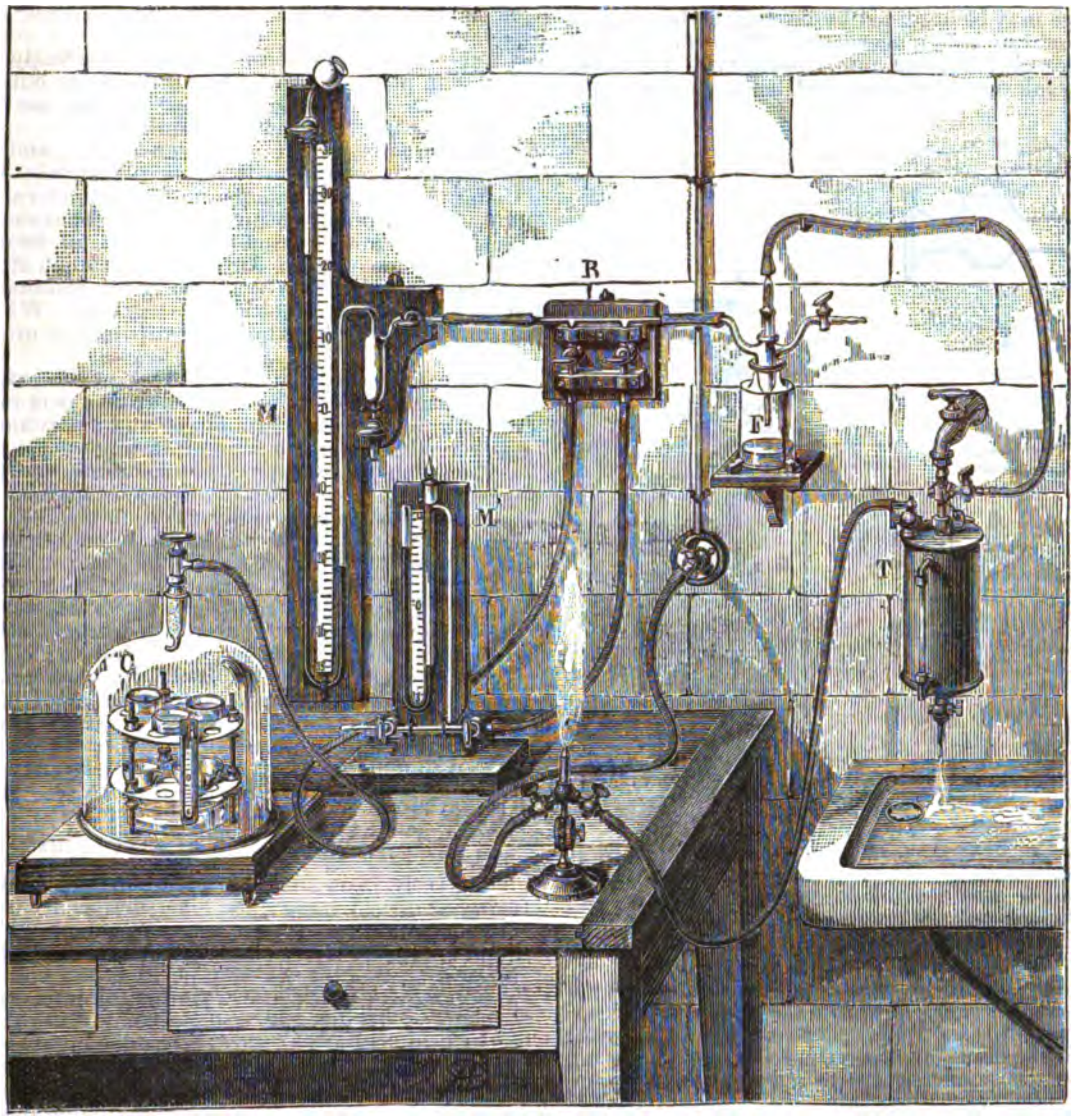
The suction apparatus formerly used in laboratories consisted of a bottle from which water was allowed to flow, and which had the inconvenience of being cumbersome. For obtaining a vacuum, recourse was had to the air pump—a costly apparatus; and for forcing air into the blow-pipe, the device used was a bellows operated by foot. All this is now replaced by the suction and force tromp, which merely requires to be connected with the faucet of a water pipe. With this remarkable apparatus, one has nothing to do now but open and regulate two cocks in order to obtain a continuous supply of air under pressure. The apparatus is shown in its entirety at T in Fig. 1, where are also shown some of its applications. In the first place, it communicates with a safety bottle, F, which is provided above with a valve to prevent the water from entering the vacuum apparatus—an event that would occur should the pressure of the water happen to diminish suddenly in the pipes. R is a board to which are affixed two glass cocks, forming a double T. This arrangement permits of obtaining a vacuum in two different directions. M is a pressure gauge that shows the degree of the vacuum produced in the various apparatus. M' is a pressure gauge that can be moved from place to place. These two instruments are so constructed that they can be easily filled and cleaned, and their scales are detachable. C is a bell glass with polished edges, and which is provided at the top with a polished glass cock. It rests upon a base which has been polished with emery, and which is cemented to a metallic frame supported by four legs. This bell glass covers a stand upon which capsules or vessels containing extracts may be placed. Under the lower shelf of this stand is placed a vessel containing sulphuric acid. The degree of vacuum is ascertained through a small manometer.

In the foreground may be seen the gas burner that the tromp converts into a blow-pipe when air is forced into it. It only remains now to explain the mode of operation of the apparatus. The tromp is based upon the principle of the Giffard injector, and was devised in 1872 by Mr. Lane, a pupil of Deville's. Shortly after that period, the brothers Alvergniat put the first models of the apparatus into the market, and the use of them has now become general in laboratories.

The tromp, which is made of glass, consists of two conical nozzles, A and B, arranged as shown in the diagram in Fig. 2. The water enters through the faucet, R, passes from cone A into cone B, as in the injector, and, on making its exit, carries along with it the air that it has sucked in at T. The water that flows out at E is thus mixed with air. The suction of the tube, T, is very strong, and, upon putting the tube in communication with a bell glass, it is possible to obtain a maximum vacuum, which varies in winter and summer according to the tension of the aqueous vapor.

The apparatus may be made of metal. Mr. Alvergniat, in his new apparatus, has connected the two cones at G (2, Fig. 2), and left but one aperture, H, or two apertures, as shown in Fig. 3, which represents one of the metallic tromps at *t t'*. The tube through which the water flows is prolonged in a metallic cylinder, G. If the lower cock, D', be nearly closed, a certain quantity of water will accumulate in the cylinder and compress the air therein, and the latter will escape under pressure through the cock at the top. It is possible to obtain a pressure of 0.10 m. of mercury. The discharge of compressed air is regulated through the cock, D'.

This exceedingly practical apparatus is destined to render valuable services to physiologists, botanists, and all laboratories of science.—*La Nature*, and *Sci. Amer.*



Alvergniat's laboratory tromp (see also next page).

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**Collodion Coating for Pills.**—Bernbeck, a German pharmacist, recommends the use of collodion as a coating for pills which are intended to be soluble in the intestinal contents. Flexible collodion is to be used, and the pill must be absolutely dry.

### Irish Moss as a Substitute for Gum Acacia in Pharmacy.

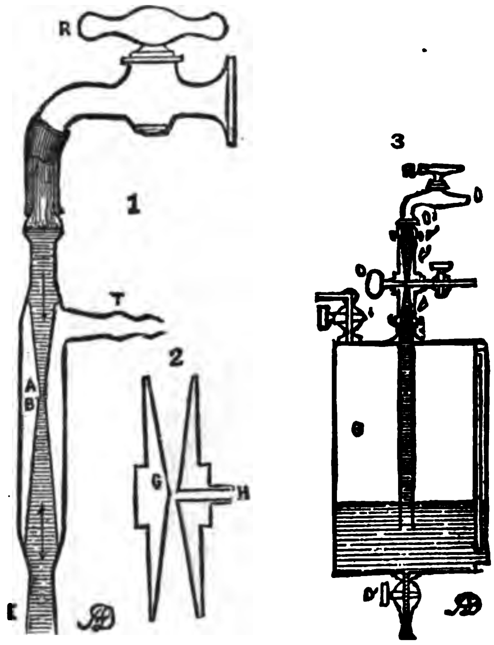
AT the present time. when the price of gum arabic is about five times what used to be considered its normal value, it seems not inappropriate to introduce for consideration a subject such as I have to bring before you. A mucilage of Irish moss, prepared by boiling in water, has been largely used in America for the emulsification of cod-liver oil, but so far as I have been able to ascertain by liberal reference to journals published in that country and in this, its more extended pharmaceutical use has not been proposed.

The only two British species of algæ which yield a mucilaginous jelly with water are *Gelidium corneum* and *Chondrus crispus*, or Irish moss. The latter is the more plentiful, and being a well-known article of commerce is easily obtainable. The composition of commercial Irish moss is given by Church as—

| | |
|---|---|
| Water | 18.8 |
| Albuminoids | 9.4 |
| Mucilage | 55.4 |
| Cellulose | 2.2 |
| Mineral Matter | 14.2 |
| | 100.0 |

Stanford says it yielded him 63.7 per cent of carragheenin, or vegetable jelly ; this probably includes the albuminoids and mucilage given in Church's analysis.

The mucilage may be obtained by boiling, by heating on a water-bath, and by cold maceration. The usual method is boiling. However, having put a quantity of the moss into water to soak one afternoon, and being unable to attend to it till the next day, I found when I examined it that the water was distinctly viscous. By putting a large quantity of moss into a smaller quantity of water, and macerating with occasional gentle stirring for twenty-four hours, I obtained a mucilage of about three-fourths the viscosity of acacia mucilage.



Alvergniat's laboratory tromp.

At the commencement I encountered a difficulty which threatened to be a serious objection. I found it exceedingly troublesome to get the mucilage clear, the insoluble particles suspended in it being so minute that the straining medium necessary to exclude them required to be so fine that the mucilage would scarcely pass through it. Mr. Huested [NEW REMEDIES, July, 1881, p. 194] records similar experience. In a case where the small particles in suspension would not be objectionable, a fairly presentable product may be obtained by using muslin or calico as the straining material, and gently stirring or pressing. For emulsions this serves admirably. In a clear mixture, however, the particles become objectionably evident when the mucilage is diluted. To obtain a clear preparation, Mr. Huested recommends that the mucilage while hot should be poured into a flannel filtering-bag and allowed to drain through, no pressure or stirring being employed. Proceeding in a similar way I failed to get satisfactory results. I could neither get the mucilage to run through reasonably rapidly nor obtain it so clear as I desired. It may be that Mr. Huested's manipulation is superior to mine, or his mucilage was not so clear as that which I have now succeeded in preparing. After many failures, the details of which I need not give, I found that by using a hot-water funnel and straining the mucilage through absorbent cotton wool supported on muslin, a preparation clear enough for all but exceptional purposes could be obtained with comparatively little difficulty. If a perfectly water-clear preparation be required, it may be obtained by making a weak mucilage, filtering it clear, and then evaporating to the thickness required. If a clear jelly were wanted this would be the only way to prepare it, because a decoction of this consistence could not be strained, even when kept hot, in anything like a reasonable time, if at all.

A quarter of an ounce of moss, washed free from dust and sand, soaked in 24 oz. of cold water for an hour or so, boiled gently for five minutes or heated on a water-bath for double the time, and strained in the manner I have described, yields about 18 oz. of mucilage closely resembling in appearance and viscosity the acacia preparation, and possessing as little taste.

I have observed that the clear mucilage has less flavor than that which has not been freed from insoluble particles.

A quarter of an ounce macerated in 4 oz. of cold water for twenty-four hours, or longer, gives a mucilage such as that to which I have already made reference.

Comparing the moss mucilage with acacia mucilage in combinations, I find that it serves as well as the latter for chalk mixture. Guaiac mixture made with it does not so soon acquire a greenish tinge as that made with acacia ; oxidation appears to be retarded and presumably the moss is therefore to be preferred. For suspending copaiba it is superior to acacia, separation taking place much more slowly and less completely. Part of the copaiba remains in an emulsified state at the bottom of the bottle when moss is used, but with acacia the liquid in the lower part of the bottle is free from anything of that kind, all the oleoresin having risen to the top.

For emulsifying cod-liver oil it is greatly superior to acacia in point of preventing separation, but a finer division of the oil can be obtained by the use of acacia in greater proportion than the equivalent.

Moss mucilage, ʒ vi., cod liver-oil, ℥ i., and water ℥ ij., produce an emulsion that is practically inseparable. Using ʒ vi. acacia mucilage, ℥ i. cod liver-oil, and ℥ ij. water, the product obtained quickly separates.

It should not be used for suspending heavy powders without some caution, for I find that when it is employed to suspend subnitrate of bismuth, the bismuth when once it settles down will not again shake up. Where there is no objection of this kind it is superior to ordinary mucilage.

In regard to compatibility, moss mucilage forms a clear jelly with subacetate of lead solution ; it is miscible with rectified spirit and dilute nitric acid ; perchloride of iron gives a slight gelatinous precipitate.

The preparation keeps good for some weeks in full bottles without any preservative. One specimen is shown that has been kept in a partially filled bottle in the front shop for two months and it can hardly be said to be bad ; other specimens, however, of about the same age have become mouldy at the top. It does not sour like acacia mucilage.

Pereira says that *Chondrus crispus* has a popular reputation for pulmonary complaints, chronic diarrhœa, and irritation of the kidneys and bladder. The mucilage strikes one as being well suited for use with medicines for any of these complaints ; a few ounces of it in a cough mixture, for example. It may be used freely for it is readily digested—the melting point of the jelly being 80° F., not much above that of isinglass jelly used for invalids. —PETER BOA, *in the Pharm. Jour.*

### Purification of Fixed Oils.

MR. D. B. DOTT suggests the following method of purifying or decolorizing fixed oils (such as are used in preparation of ointments, etc.) as one which will give very good results in some cases. The commercial oil is agitated with about $\frac{1}{20}$ its volume of a 10% solution of permanganate of potassium. Dilute sulphuric acid is then added and the mixture well shaken. After the water has settled on standing, the oil is decanted and filtered. As a result it will have greatly improved in appearance and will have undergone no apparent deterioration. The process works best with olive and almond oils, but is less successful with linseed oil.—*Pharm. Jour.*

### Liquefied Ozone.

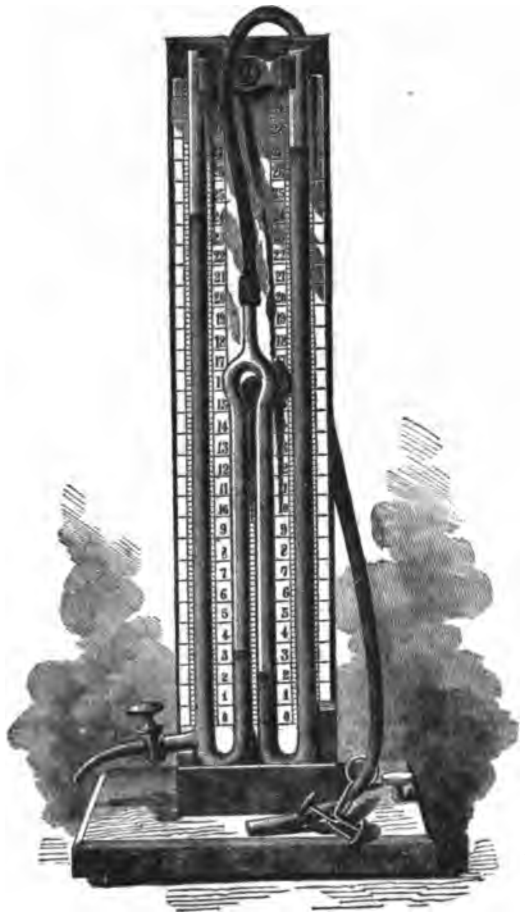
K. OLSZEWSKI has succeeded in preparing liquid ozone by exposing it to the temperature of oxygen boiling under the ordinary pressure of the atmosphere (—181.4° C.). Two tubes were arranged so that the outer one contained liquefied oxygen gas. While the latter was allowed to return to the gaseous condition by exposure to air, which resulted in the reduction of the temperature to that mentioned above, oxygen gas containing ozone was passed through the inner tube. The ozone was thereby condensed, while the oxygen escaped as gas. In thin layers, liquefied ozone is transparent, in somewhat thicker layers (2 mm.) almost opaque. Its color is a dark blue. A small drop of liquefied ozone, contained in a sealed tube, which does not decompose either at its boiling point or at the ordinary temperature, is converted at the latter into a bluish gas, which returns to a dark blue liquid when the tube is immersed into liquefied olefiant gas.—*Monatsch. f. Chem.* 8, 69.

## APPARATUS FOR DETERMINING THE SPECIFIC GRAVITY OF LIQUIDS.

IT may be said that reliable determinations of specific gravity have, as a rule, involved the use of a delicate balance. This condition has prevented accuracy in cases where no balance was obtainable, or where its use was inadmissible. The great family of hydrometers of Baumé, Twaddell, Nicholson, and others, are far from exact, but have been devised to meet this want—an accurate method not requiring a balance.

The hydrometer is, for several reasons, an unsatisfactory instrument. Its accuracy depends on the invariable volume of a solid. If made of metal, it may become indented, and so destroyed. If made of glass, unless allowed to stand for a long time before graduation, its volume may slowly change. Such alteration of cubic contents is often observed in thermometers. From this cause one radical defect attaches to the system. To make them sensitive, the stem on which the graduations are marked has to be of small diameter, and, consequently, of great length in proportion to the range of its scale. Accordingly, to cover the cases of liquids of varying specific gravity, to which branch of the subject these notes are especially directed, several hydrometers are found necessary. Capillarity introduces another source of error. In the same liquid the same hydrometer will give different readings, according to the way it is manipulated. The liquid adhering to its stem, where it emerges from the surface, pulls it down to a greater or less extent. If the hydrometer is pressed down and allowed to rise slowly, it will give a lower reading than if just allowed to settle to a position of rest. In different liquids the error of capillarity is still more serious, and cannot be avoided or allowed for. Finally, as a mere matter of practice, it is impossible to read the instrument with any accuracy, the intersection of the liquid surface with the hydrometer stem not defining a sharp line.

The apparatus here illustrated obviates these objections. It gives a definite reading. One apparatus can be used for liquids of all specific gravities, and errors due to capillarity are completely avoided. It is based on the law of the pressure of liquids, which states that the height of two columns of fluid that are in equilibrium is inversely proportioned to their specific gravity. This principle was the basis of Dulong and Petit's method for determining the co-efficient of the absolute expansion of mercury.



Apparatus for determining the specific gravity of liquids.

A glass tube is bent into the shape indicated, and provided with a nozzle at the central bend for the attachment of an India-rubber tube. A pinch cock is used to close the latter. As shown in the cut, one of the lower bends is provided with an outlet cock, also of glass. This may be omitted, as it is only a matter of convenience and neatness, enabling the manipulator to more easily change the fluid where several determinations are to be made in succession. The tube should be about 12 millimeters (½ inch) internal diameter. In height it need not exceed 400 millimeters (16 inches), though for accurate work it should be two or three times as high. This applies to the long members. The central portion should be a little more than half as high.

The tube is mounted on a stand provided with a leveling screw. Back of it is a mirror, which should be of good quality, free from striæ or bubbles. The tube lies snugly against this. On the mirror a scale is marked for all four members of the tubing. The graduation must be executed with the greatest accuracy. The lines must lie all in one direction, parallel to each other, and those on one side should be continuations of those on the others. If this condition is departed from, at the very least the scales for the short and long tube on either side must be identical in level as far as the short one extends. The scale need not be etched or engraved on the mirror. It may be marked upon the front of the tube.

To determine the specific gravity of a liquid, water is first poured into the right-hand tube, until the short tube is filled nearly to the bend. The apparatus is now levelled with the leveling screw seen passing through the base, the water being used as the gauge.

In reading the height of the columns, the eye is so placed that the division of the scale nearest to the water level bisects the reflection of the retina in the mirror. The level of the water can then be read off within a small fraction of a millimeter. The fluid to be tested is poured into the left-hand tube, in about equal quantity. By blowing into the rubber tube, the water and other fluid are forced down the center tubes and up in the outer. When the inner columns have sunk nearly to the bottom of the tube, the rubber tube is closed by a pinch cock. The pinch cock is best applied close to the glass nozzle. Upper and lower readings for both liquids are taken, just as in a siphon barometer. The lower readings are subtracted from the upper ones, giving the true and relative heights of the supporting columns. The height of the water column is divided by that of the other column, and the quotient is the specific gravity.

The best method of levelling the apparatus is to first pour water into both sides, to force it upward as described, and take regular readings and adjust the levelling screw by these observations.

The different capillarity of various liquids does not affect the observations, as the surfaces counteract each other's effects. There is no trouble in reading within one or two tenths of a millimeter, so that in an apparatus a meter high the readings would be within two ten-thousandths, and the quotient expressive of specific gravity of course much closer. As the same water will answer for a series of observations, no cock need be supplied for drawing it off. For extremely accurate work, a rather large diameter of tube should be fixed upon (20 mm. or ⅘ inch), and the tubes should be made long. As above suggested, a meter (39.37 inches) effectual height would be sufficient for any work, especially if the readings were taken with a cathetometer.—T. O'CONNOR SLOANE, Ph.D., in the *Scientific American.*

### Artificial Coloring of Wines.

AT a recent meeting of the Paris Pharmaceutical Society, M. Portes spoke on a new material sold by dealers for coloring wines. They call it *couleur introuvable* because they claim chemists cannot detect it, owing to its singular property of turning green upon the addition of alkalies, just as natural wine does. The coloring stuff is very puzzling, it seems, because it is composed of three materials—namely, indigo blue, tropæoline yellow, and sulpho-fuchsine. As sulpho-fuchsine is bleached at once by the action of alkalies, it follows that when these reagents are added the blue and yellow only remain, which form the green hue observed. The fraud is very ingenious, and M. Portes had some trouble in isolating the three components of the dye stuff. He succeeded by dissolving out the tropæoline with boiling amylic alcohol, the sulpho-fuchsine with boiling ethylic alcohol, and the indigo with water. The mixture is a most excellent imitation of the natural color of wine, as this really consists of red, yellow, and blue in unequal proportions. It must be admitted that neither of the components of the stuff is poisonous. But French law makes no distinction, and punishes all dealers and manufactures of wine colorings. Hence it behooves pharmacists to keep on their guard, and to refuse to have anything to do with these people, and to beware of their misrepresentations as to the actual provisions of the law. In regard to the detection of the fraud in question, the usual peroxide method still remains the best. In consists in agitating the suspected wine with an equal weight of finely powdered peroxide of manganese and filtering. The sulpho-fuchsine is easily detected in the filtrate by the ordinary chemical tests, the readiest of which is its immediate bleaching by the addition of ammonia. Of course the test in legal cases must be confirmed by others. With some American wines, very rich in coloring matter, it is found sometimes necessary to dilute the wines with an equal quantity of water before adding the peroxide, but then the test works satisfactory.—*Chem. and Drugg.*

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**Maranham Copaiba Trade.**—The Maranham copaiba trade is gradually being usurped by the United Sates, at the expense of Great Britain. From 1883 to 1884, 63 tons went to England, and 2¼ tons to the States; from 1884 to 1885 the figures were respectively 50 against 22 tons, and from 1885 to 1886, 17 against 17 tons. No other countries apparently receive any balsam directly from Maranham.

### Hints on the Culture of Some Officinal Plants.

In No. 10 of Mr. T. Christy's valuable publication on "*New Commercial Plants and Drugs*" we find an interesting paper by Mr. Lewis Castle relating to the cultivation of medicinal plants, from which we abstract the following:

**Aconitum Napellus** succeeds on almost any soil that is not very dry, but it prefers a shaded position, thriving under trees or in any similar situation. Division of the roots is the readiest mode of increasing it, as the smallest pieces will grow and make good-sized plants more quickly than from seeds. The latter can, however, be sown in autumn, and the seedlings transplanted in the following spring, allowing a good distance between them, as they grow rapidly. When the plant progresses favorably the roots will be of fair size the second or third year.

**Anemone Pulsatilla.**—It is advisable to raise the plant from seed sown in August, in pans or pots of light, sandy soil, placed either out of doors or in a cold frame. The young plants can then be transferred in the following spring to their permanent quarters. Select a rather warm position and deep, well-dug soil, light loam being the best, with a good natural drainage, as the plant is very impatient of stagnant moisture, being found in a natural state on open hills in dry soils. The plant may also be increased by subdivision of the roots either in autumn or early spring, the latter being preferable in favorable seasons, though sometimes the flowering is liable to be checked for that season.

**Anthemis nobilis.**—The plant is perennial, easily grown and easily increased. It succeeds in almost any ordinary soil, and divisions of the plant, or cuttings, placed in a shady position and kept moderately moist, will soon form roots and, when established, can be transferred to their permanent quarters. The flowers are produced in July and August, and if cut in succession as they expand, others will open from time to time; but where many plants are grown it is necessary to cut as many as possible at one time to economize labor.

**Aristolochia Serpentaria.**—The seeds should be sown under glass, either in a cold frame in autumn or in heat in early spring, employing a light, sandy soil and draining the pots thoroughly. In May the young plants can be placed out of doors, selecting a warm, sheltered position, free from stagnant moisture, but where they are not likely to suffer in hot weather. A slight mulching over the roots after the stems have died or been cut away in autumn will provide a suitable protection for them until the succeeding spring.

**Artemisia Absinthium** succeeds best in sheltered situations. It is increased by seeds, cuttings, or division of roots, and as the leaves and shoots are used, the chief point is to induce as free growth as possible. By providing a suitable number of young plants to form a succession, the old plants can be destroyed when they are becoming too woody or bare of growth.

**Carum Carvi L.**—As usually grown this plant is biennial, but it can be rendered an annual, though not with any material advantage from a commercial point of view. It has been cultivated for a considerable period in England where the old practice (now greatly discontinued) was to plough up old pasture land early in March as weather would permit, selecting, by preference, strong loam. On each acre were sown 12 pounds of caraway, 10 pounds of coriander, and 10 pounds of teasel. The coriander was cut in July. The same month in the following year the caraway was fit for cutting, and in the autumn of that year the teasels were harvested. A good mode of treating it is to sow the seed in drills in early autumn or spring, the latter being generally preferable, as the plants have then ample time to become strong before winter. The seedlings should be thinned to 4 or 6 inches apart, if they are strong, and the only subsequent attention needed will be to keep the ground clear of weeds. In harvesting caraway, care must be taken to cut the tops before the seeds or fruits are fully ripe, as they quickly fall and a large portion of the crop will be lost. The stems can be tied in bunches and the seeds threshed out when they have dried sufficiently.

**Chimaphila umbellata** Nuttall.—This is said by the writer to be a rather difficult plant to grow in England, which he thinks is owing less to clime than to certain deficiencies in the soil. Its natural home is in woods, but not in damp situations, mostly frequenting the drier and higher parts. In England it requires a border of light soil, well drained, and not too exposed to either sun or winds. It can be increased by division, but this operation must be carefully performed or the plant will suffer, as several have found in their eagerness to increase their stock which has resulted in total loss.

**Cimicifuga racemosa** Elliott can be grown in any ordinary garden soil, but must be allowed plenty of space, and does best in a lightly shaded position. The seeds should be sown in a similar situation as soon as they are ripe.

**Citrullus Colocynthis** Schrad. is a perennial and is easily increased by sowing seeds in light loam and leaf soil, in moderate heat, and the plants either placed out in beds of rich soil in warm situations, or grown in frames, where the plants will succeed better and ripen their fruits freely. Like most of the *Cucurbitaceæ*, the fruits should, however, be gathered before they are fully ripe. The roots can be easily preserved from year to year, if protected from frost and dampness.

**Datura Stramonium L.**—A good supply of plants can soon be secured by sowing the seeds under glass and planting out in May. In good soil they will grow rapidly and produce their fruits and seeds before autumn. The seeds can also be sown out of doors when all danger of frost is past, and in ordinarily favorable seasons these, too, will afford plenty of fruits and seeds before the end of the season. The soil should be well dug, and whether the seed is sown outside or the seedlings reared in houses and transplanted, they are better in rows, allowing good space between them. In dry weather supplies of water will be found beneficial, as, being a rapidly growing plant, it soon exhausts the soil.

**Delphinium Staphisagria L.**—Although a native of Southern Europe, it survives ordinary winters in England in warm districts and sheltered situations and a little protection in less favored places will make it safe, a hand light being the best, though a slight mulching of some light material will commonly answer. The seeds can be sown in a bed or border of light soil in autumn, where the plant can safely be left out during the winter; otherwise the seeds may be sown in pans placed in a cold frame, and the seedlings be transplanted in the spring. They succeed best when undisturbed, and usually produce their flowers and seeds in the following summer and autumn. If sown under glass early in the spring, and then planted out immediately when the weather is fine enough, they will flower the same season, as they will also do in suitable situations if sown out of doors.

**Ecballium Elaterium A. Rich.**—The root is large and fleshy, with long, trailing stems, and small, oval fruits that, when at maturity, burst and cast out the seeds with considerable force. In consequence of this peculiarity, the plants must be looked over carefully and the fruits gathered before they are fully ripe. As in the case of Colocynth, the seeds may be sown under glass early in the season and subsequently planted out, or in light, warm soil in the open ground, when all danger of frost is past. In rich soil the plants grow rapidly during the summer, producing fruits abundantly. The roots may usually be left safely in the ground with the protection of a thick covering of cocoanut-fibre, refuse, fern fronds, leaf soil, or anything of similar character. The roots will last for several years, but a fresh stock can be raised from seeds every season, if desirable, as when once the plant is obtained seeds will be plentiful.

**Foeniculum capillaceum Gilib.**—An easily-grown plant, requiring no special treatment, succeeding well in good garden soil. Sow the seeds in autumn or April, in drills, thinning the seedlings out slightly. Keep the ground clean, and in hot, dry weather supply water occasionally, if convenient. It is usually treated as a biennial, making its growth the first year, flowering and seeding the second, when the crop can be harvested the same way as caraway, *q. v.*

**Helleborus niger L.**—It is not difficult to cultivate, for, although a native of mountainous districts in several countries of Europe, it succeeds in almost any soil that is well drained. Planted in good loam, rather moist, or in shaded situations, it grows luxuriantly, forming thick, knotted roots and abundant foliage. Where the soil is not too heavy, an annual dressing of light manure or leaf soil is beneficial to the growth, and is especially useful for encouraging young plants; but any rank manure should be avoided, and the older plants will be better without it if they are grown for their roots alone. A good mulching of leaf soil is the safest application, but in ordinary garden soil even that can be dispensed with. The plants should be placed in rows when a large number is grown, and they can then be lifted as required. Dividing the roots in autumn and replanting the divisions in a similar way, is the best mode of increasing it.

**Hydrastis canadensis L.**—The plant thrives in a moist, shaded position, in light vegetable soil, and can be increased either by division of the roots or by seeds.

**Hyoscyamus niger L.**—The biennial variety is chiefly valued for medicinal purposes. Owing to its possession of large, fleshy roots which strike deeply into the soil, the ground must be well dug and prepared for the plant, a dressing of old, not rank, manure being advantageous. The seeds can be sown in autumn, in drills, and the seedlings thinned out freely the following spring. During this first season the roots and basal leaves are formed, but in the following year the stems and flowers are produced, and the medicinal qualities of the plant are most developed. By sowing each season a succession can be had, so that a certain quantity of the crop can be taken every summer and autumn.

**Inula Helenium L.**—The plant can be increased by seeds sown out of doors in autumn in prepared beds, and the young seedlings transplanted the following year to their permanent quarters, allowing 12 to 14 inches between the plants, which should be placed in rows for convenience. A quicker way is to obtain offsets from the roots with buds attached, and insert these in rows like cuttings, to be transplanted when roots are formed and growth advancing. In either case the roots can be lifted for use the second year, as they progress rapidly in good loamy soils.

**Lappa major** Gaertner.—The growth is rapid and the roots form seedling plants from seeds sown in autumn are fit for lifting the following season.

**Mentha arvensis** must be propagated from root-sets or cuttings, and care be taken to watch the beds, to see that no seedlings take root; for if they do they must be cut out or the whole bed will be spoiled. A small-leaved mint springs up (from seed it is supposed); hence the necessity for carefully watching the plants when cutting the stems for distillation. When land can be spared, the rows ought to be 3½ feet apart.

**Pimpinella Anisum** L.—Chiefly grown in warm districts of Europe, and requiring, in England, well-drained soil in a sheltered position. Seeds can be sown in April and a crop obtained in August in favorable weather. It can be treated in matter of soil and cultivation like fennel and caraway.

**Podophyllum peltatum** L.—It is not difficult to grow, but requires a moist, light soil, or preferably a peat border, where moderate shade can be provided by neighboring shrubs. It can easily be increased by division of the roots, which may be transplanted in rows; but it is a good plan to reserve a few plants especially for propagation, so that it will not be necessary to disturb the general stock frequently, or until the roots are large enough for commercial purposes. Its thick and fibrous roots are collected, in America, in August, and dried.

**Polygala Senega** L.—It is not difficult to grow, but requires some protection in winter, a light mulching over the roots being sufficient in the south of England, but in cold, exposed places a hand-light would be the safest means of preserving them. Ordinary garden soil suits it, provided there be suitable drainage. The best way is to obtain roots for stock, but increase will be slow, as division must be practised very carefully.

**Spigelia marilandica** L. is a perennial, with fibrous roots, and requires a deep, moist bed of peat, or a light soil composed largely of leaf mould or vegetable refuse, to secure success. It is impatient of any rank decaying material, and though it can be increased by division, the process is a slow one.

**Valeriana officinalis** L. is generally found in rather dry situations, attaining a height of 2 to 3 feet, but under cultivation, especially in shaded, moist positions, and rich soil, it becomes stronger. When grown for medicinal qualities it is not, however, desirable to have it too strong, as in a smaller state, in drier and poorer soils, it is found that its qualities are more powerful and concentrated. The roots have long, fleshy fibres, and the plant can be increased by division, either in spring or autumn, one or two season's growth rendering them fit for lifting, which should be done in autumn.

**Veratrum album** L.—The plant requires a rich and deeply-worked soil, and in suitable position it grows very luxuriantly; being readily propagated either by seed or division. The seeds may be sown in the open ground in autumn, thinning the seedlings freely, and transplant them in the following spring, allowing ample space for development, as their large leaves require plenty of room. For quicker increase, dividing the plants is a better method, planting the divisions in autumn; and if good-sized pieces are taken, they will form roots large enough in two or three years' time. The seedlings require three or four years to attain similar size.

In commenting upon the above paper, Mr. Christy says that the following averages may prove useful in estimating the probable yield of dried produce from a given quantity of green material. Roots loose $\frac{5}{7}$ of their weight; barks, $\frac{3}{5}$; leaves, $\frac{4}{7}$; and flowers $\frac{8}{10}$.

◆◆◆

**Ethereal Solution of Tannin** of syrupy consistency is the latest remedy for burns. It is said to soothe pain immediately and the evaporation of the ether leaves a pliable, non-elastic coating which is superior to collodion.

## APPARATUS FOR FORMING CHLORATE OF AMMONIUM VAPOR.

There seems to be a fashion in England just at present, of using nascent muriate of ammonia by inhalation as a remedy for nasal and laryngeal catarrh, if we may judge from the appearance of a variety of modifications of the apparatus in the columns and advertising pages of our exchanges. As the construction of an apparatus for this purpose is a very simple affair, we reproduce some of the illustrations referred to, as well as of one which we have often made out of the materials to be had in every drug store, and suggest that a little attention given to this subject, and the expenditure of a little time and materials, may be found profitable.

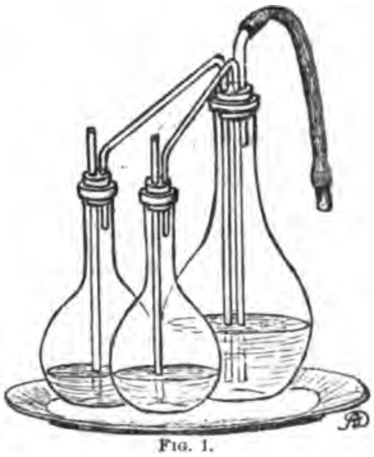


Fig. 1.

The form shown in Figure 1 was long ago proposed by Lewin and still remains the most practical and available. With the aid of three glass flasks, or even ordinary bottles with large mouths (like quinine bottles for the smaller and a one half-pound salt-mouth for the large one) a few feet of glass tubing and a few inches of rubber tubing, it can be quickly made by any person accustomed to laboratory manipulations. One of the small flasks contains a small quantity of strong water of ammonia, the other has in it an equal amount of strong hydrochloric acid. Into the large flask should be placed some rose-water. Upon holding the mouth piece of the rubber tube in the lips, and taking a deep inspiration so as to *draw* air through the apparatus, the air passes down the straight tubes into the small flasks, bubbles up through their contents, passes into the large flask by means of the bent connecting-tubes, and carries with it the vapors of ammonia and acid. These vapors are washed by passing through the rose-water, and in the space in the large flask, above the rose-water, they mix in the form of a white, smoke-like cloud of muriate of ammonia, and from thence are drawn into the air-passages by means of the rubber tube. It is best to make the stoppers of rubber and to stand the three flasks on a plate or lacquered wooden tray to facilitate handling them.

Allen and Hanbury advertise the form of apparatus of which Figure 2 is a diagram.

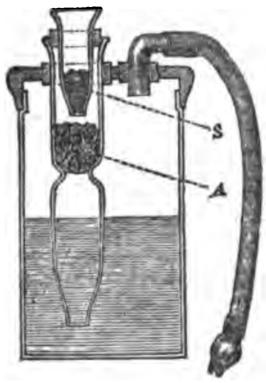


Fig. 3.

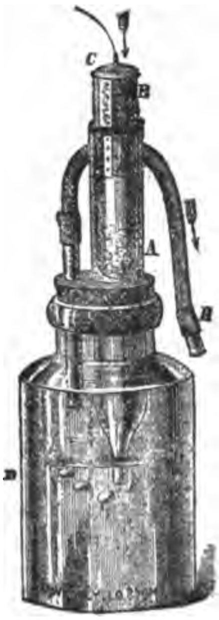


Fig. 2.

Muriate of ammonia apparatus.

The inhaler consists of a glass jar, fitted with a cap, to which are attached the charge tubes and the inhaling tube. The charge tubes are two; one, larger in diameter than the other, having the contraction which forms a holder for the acid plug, A, and the smaller one contained within it which holds the sponge for the ammonia. When required for use, the jar is half filled with cold water; the pumice plug is saturated with hydrochloric acid and inserted in its place in the large tube; the sponge is charged with solution of ammonia, and inserted in its holder within the large tube and above the acid plug. The inhaler is then ready for use, and inhalation is carried on by drawing the vapor through the water by gentle inspiration into the mouth. The mouth-piece is so shaped that it can be used either for oral or for nasal inhalation.

Hawksley offers another modification, shown in Figure 3, the principle of which is the same; and still another form, known as Basdon's, is the one represented by Figure 4. In the latter, the *cul-de-sac* at the lower extremity of the tube containing the chemicals is intended to receive any acid that may drip from the plug of pumice stone.

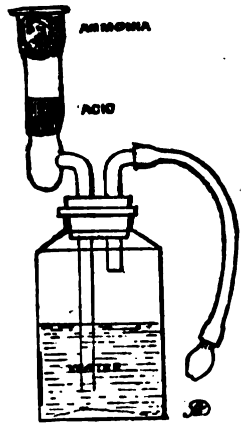


Fig 4.

◆◆◆

**Substitutes for Collodion.**—The *London Medical Record* contains the following formula, which has been used to prepare a calming and adhesive preparation suitable for neuralgias, or tender, inflamed, or abraded surfaces. Bits of linen or silk dipped into it answer the same purpose as the so-called "court plaster": Mastic ʒ iij., balsam Peru ʒ i., narcotine ʒ vi., chloroform ʒ vi. The three first subtances must be powdered separately, and then added to the chloroform.

## Standardized Preparations of Belladonna.

THE advances made in the methods of estimating alkaloids and other active principles during the last few years will render it possible to introduce into the pharmacopœias that will appear hereafter quite a series of preparations of active drugs, made to contain known quantities of the active ingredients. Up to the present time, this has been found feasible only in the case of preparations of opium, cinchona, and nux vomica.

In a recent paper by Prof. Dunstan and Mr. Francis Ransom, read before the Pharm. Society (*Pharm. Journ.* April 16th), the authors submitted the details of the application of this method to the preparations of *belladonna.* Of the first portion of the paper we can only give an abstract.

In a general way, the following five questions present themselves in a case of this kind:

1. How may the active principle be accurately estimated in the drug?
2. What is the best solvent to extract the active constituent?
3. What part of the plant is best used?
4. What physical condition of the preparation is most compatible with the production of a standard preparation?
5. How may the quantity of active principle be best estimated in the preparation?

Regarding *belladonna*, the authors refer to their published results regarding the best methods of estimating the alkaloids atropine and hyoscyamine, both in the crude drug as well as in the preparations. They also show that the *root* of belladonna is preferable to the leaves, not because of any material difference in proportion of alkaloids, but on account of the lesser difficulty to separate them. In fact, they propose to drop the use of the leaves entirely and use the root for all the preparations.

[Note by ED. AM. DRUGG.—We agree with the authors in principle, but are inclined to believe that it would be great wastefulness to throw away belladonna leaves altogether and to use the root alone. Already the supplies of belladonna root are beginning to fall behind the demand, a very large quantity being required alone by the manufacturers of atropine. Were the demand to increase much more, it is certain that the supplies would become inadequate, particularly as the roots should not be collected until the plants are several years old. If manufacturers of Extract of Belladonna Leaves were to adopt the plan to assay the extract prepared on a large scale—which may be done best on a sample of a large batch—and to sell the same under a guaranty of the strength stated on the label, this would to some extent help over the difficulty. Of course, it would be necessary to control the correctness of the assay in case of doubt.]

Regarding the solvent, the authors clearly demonstrate that alcohol of 0.887 spec. grav. (or of 71 per cent by volume) should be used to extract the alkaloids.

The authors then proceed to give the details of the preparation in the following manner:

*Preparation of the Standard Extract.*—In deciding on the kind of extract which shall be taken as the standard, we have been largely guided by questions of practical convenience. There are two physical conditions of an extract in which it is feasible to standardize it, the semi-solid extract and the dry extract. In the case of nux vomica, there is not sufficient difference in the alkaloidal content and in the ratio of alkaloidal salt to extractive matter, in good commercial specimens, to prevent the competent pharmacist from preparing and dispensing a reliable standard extract. With belladonna the case is different, since so far as we have been able to ascertain, the ratio of extractive to alkaloid is subject to considerable variation, and although in case of need it would no doubt be possible to standardize the conventional extract, yet we think, on the whole, that a dry extract will be more convenient for general adoption. Before such a proposal can be accepted, it must be shown that the alkaloidal salts of belladonna (principally malates) are not affected by the heat necessary for evaporation to dryness. Two specimens of the ordinary extract, which contains about 18 per cent of water, were prepared, and the quantity of atropine and hyoscyamine estimated in each. They were then evaporated over a water-bath until they ceased to lose weight. From the dry extracts exactly the same amount of alkaloid was isolated as from the semi solid extract, showing that the alkaloidal salts are not decomposed at 100° C. From a consideration of the average strength of the present extract, we propose that 2 per cent of atropine and hyoscyamine shall be taken as the standard quantity. No good specimen of belladonna extract by the suggested solvent will ever yield a dry extract which contains less than 2 per cent of alkaloids. Generally the strength of the dry extract prepared according to the method now proposed will be between 3 per cent as a minimum, and 5 per cent as a maximum. To reduce these extracts to the standard strength of 2 per cent, we suggest that a sufficient quantity of powdered milk-sugar should be added. The dry residue is always hygroscopic, but when thoroughly evaporated with powdered milk-sugar it may be kept in a properly closed bottle without any appreciable deterioration in strength. Since this extract is wholly soluble in water, or in the mixture of spirit and water with the aid of which it was prepared, all the preparations of belladonna might be produced from it as a starting-point. Or, if it is thought that any advantage is to be gained, the tincture and liniment might be made by diluting the strong percolate which is obtained during the preparation of this extract, as one of us has before suggested for tincture of nux vomica; the other suggested alternative, namely, the solution of a definite quantity of the standard extract being, however, we think with justice, adopted in the British Pharmacopœia. Any modification in detail might be adopted by manufacturers on the large scale, since the directions of the Pharmacopœia are mainly intended for the production of relatively small quantities. It is proposed that the tincture shall contain 0.034 per cent of the alkaloid, that is, it will be sixty times weaker than the extract, or will contain almost exactly three-twentieths of a grain of alkaloid in one fluidounce, and the liniment it is proposed shall contain 0.2 per cent of alkaloid. A standard plaster might also be prepared from the standard extract. [The weights and measures mentioned in the following formulæ are British, avoirdupois weight and imperial measure.]

### *Standard Extract of Belladonna.*

Take of—

| | |
|---|---|
| Belladonna Root in No. 20 powder. .... | 1 pound. |
| Rectified Spirit (sp. gr. 0.838)... ..... | 48 fluidounces. |
| Distilled Water...... ............... ... | 12 fluidounces. |

Mix the spirit with the water. Macerate the belladonna in 2 pints of this mixture for forty-eight hours, agitating occasionally; then transfer to a percolator, and when the fluid ceases to pass, continue the percolation with the remainder of the diluted spirit. Afterwards subject the contents of the percolator to pressure, filter the product, mix the liquids, and measure the exact volume of the mixture (*a*). Estimate the alkaloidal nature of the solution by the following method.

Evaporate 50 cubic centimeters of the liquid over a water-bath with a gentle heat, until all the alcohol is dispelled. Dissolve the extract thus obtained in about 5 cubic centimeters of warm distilled water, acidulated with a few drops of diluted hydrochloric acid; filter, if necessary, through a small fragment of cotton wool; pour into a stoppered glass separator, and add ammonia until the solution is distinctly alkaline. Agitate for a few minutes with 5 cubic centimeters of chloroform, separate, and again wash the aqueous liquid with 3 cubic centimeters of chloroform. Agitate the mixed chloroformic solutions with 5 cubic centimeters of diluted hydrochloric acid, separate, again wash with 3 cubic centimeters of the diluted acid, mix the acid solutions, render alkaline with ammonia, and agitate with 5 cubic centimeters of chloroform. After separation, wash the alkaline solution with 3 cubic centimeters of chloroform, mix the chloroformic solutions, evaporate in a dish of known weight and dry the residue, which should be nearly colorless at a temperature of 200° F. (93° C.). The weight of the residue thus obtained multiplied by two will give the parts by weight of the alkaloids in 100 fluid parts of the liquid. The exact volume of this liquid being known and the strength having been thus ascertained, calculate the total amount of alkaloid present therein.

Evaporate to dryness over a water-bath, and add sufficient sugar of milk to make the mixed product exactly fifty times the weight of the total alkaloid found to have been present in the liquid (*a*), allowing for that quantity which was used for the estimation. Mix intimately, powder as quickly as possible in a dry atmosphere, and transfer at once to a well-stoppered bottle. This extract will contain 2 per cent of total alkaloid.

### *Liniment of Belladonna.*

Take of—

| | |
|---|---|
| Standard Extract of Belladonna........ | 3 ounces. |
| Camphor........................ ...... | 1 ounce. |
| Rectified Spirit (sp. gr. .0838)........... | 24 fluidounces. |
| Distilled Water......................... | 6 fluidounces. |

Dissolve the camphor in the spirit and the extract in the slightly warmed water. When cold mix the two solutions, allow any undissolved sugar of milk present to subside, and pour off the clear liquor, which should measure 30 fluidounces. One hundred fluid grains of this liniment contain $\frac{1}{8}$ grain of total alkaloids, that is, 2 per cent of atropine and hyoscyamine.

### *Tincture of Belladonna.*

Take of—

| | |
|---|---|
| Standard Extract of Belladonna.... ... | 148 grains. |
| Distilled Water........................ | 4 fl. oz. |
| Rectified Spirit................. ..... .. | a sufficiency. |

Dissolve the extract in the warm water and then add sufficient spirit to produce 20 fl. oz. Allow any undissolved sugar of milk to subside and decant the clear solution. One fluidounce of this tincture contains $\frac{3}{20}$ grain of total alkaloid. One hundred cubic centimeters evaporated to dryness on the water-bath will leave a residue containing 0.034 gr. of atropine and hyoscyamine, these alkaloids to be isolated by the process previously prescribed.

### PREPARATION OF CHLORINE GAS.

For the preparation of chlorine gas, the usual methods employed do not permit the apparatus arranged for its production to deliver definite quantities of the gas at will; that is, when the process is once started, it is not easy to interrupt it and to cause it to begin again at a subsequent time. This difficulty has now been overcome by Prof. Clemens Winkler, who has hit upon the idea of preparing chloride of lime in form of pressed cubes, which are used as sources of the gas.

Chloride of lime, when treated with dilute hydrochloric acid, gives off chlorine gas even at ordinary temperature, but, owing to the pulverulent condition of the salt, the gas is at first given out in a rush, which soon ceases. It could only be regulated by allowing the acid to flow very slowly upon the chloride of lime.

Yet, if the chloride is compressed into hard pieces, with the intervention of a suitable binding agent, the evolution of chlorine gas may be regulated as easily as that of carbonic acid gas from marble. Among all the substances tried for this purpose, the only one so far found suitable is burned gypsum, or plaster of Paris. The pieces are made in the following manner:

Dry chloride of lime, of best quality, is intimately mixed with one-fourth of its weight of plaster of Paris, and the mass moistened with cold water so as to produce a damp, friable mass which can be made into lumps, between the fingers, only with difficulty. Addition of more water is to avoided. By pounding the mass for a short time in an iron mortar, it acquires the necessary degree of homogeneity. It is then forced into a square iron frame about 10 to 15 Mm. (⅜ to ⅝ inch) high by means of a flat-headed iron hammer, until it is heaped full, after which a rubber plate is put upon it and subjected to a powerful pressure. The finished, square cake, while still in the frame, is then cut into cubes, the latter pressed out from the frame upon a wooden or tinned-iron support, and dried as rapidly as possible at a temperature not exceeding 20° C. The cubes are then transferred to well-closed bottles.

The most suitable apparatus for generating chlorine gas from these cubes is the well-known hydro-sulphuric acid apparatus of Kipp provided with a ground glass stop-cock. Any other kind of apparatus working on the same principle will answer. For instance, that devised by Süss (New Rem., 1877, 331) in which the solid from which the gas is to be generated is packed into the neck *b*, the liquid being made to come in contact with it by simply turning the globular vessel on its side. It is charged with hydrochloric, acid of sp. gr. 1.124, previously diluted with an equal volume of water. The acid need not be chemically pure, but it should not contain any sulphuric acid, as this would cause the crystallization of gypsum. The gypsum used as binding agent causes no disturbance: in proportion as the chloride of lime is dissolved, it separates as a dense powder and collects at the bottom of the apparatus. The generation of chlorine gas may be regulated at will and can be interrupted at any time by closing the glass stop-cock.

H. Trommsdorff, of Erfurt, has undertaken the manufacture of the compressed chloride of lime. It can be obtained through dealers in chemical apparatus.—After *Ber. d. Deutsch. Chem. Ges.*, 1887, 184.

### A New Method of Separating the Different Alkaloids of Opium.

Prof. P. C. Plugge communicates a new method of separating the more important alkaloids of opium, when they are present either together or in groups of two or more.

Supposing a solution is at hand containing narcotine, papaverine, narceine, thebaine, codeine, and morphine, it is found that these alkaloids may be separated in groups by the successive action of the following precipitants: acetate of sodium, ferricyanide of potassium, salicylate of sodium, sulphocyanide of potassium, and ammonia.

The first reagent to apply is *acetate of sodium*. This does not precipitate morphine, codeine or thebaine, and narceine only if the solution contains more than ¼ per cent. But it precipitates *papaverine* and *narcotine*, even from very dilute solutions, as *free* alkaloids.

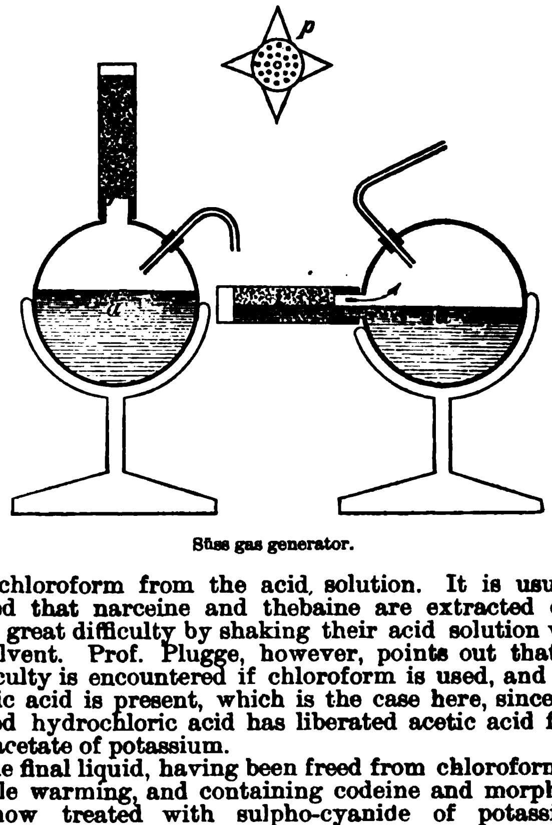
These two alkaloids may afterwards be separated as follows: Dilute their solution so that it will contain only ¼ per cent or less of alkaloid, and add a solution of ferricyanide of potassium. This precipitates only papaverine. If this is filtered off after 24 hours, the narcotine may be obtained from the filtrate by precipitation with ammonia. The papaverine is separated from the precipitate above obtained by digesting with dilute solution of soda or ammonia, transferring to a filter and washing, first with alkaline and then with pure water. Should it not be pure enough yet, it is dissolved in dilute hydrochloric acid and reprecipitated by ammonia.

After the separation of papaverine and narcotine, there remains a filtrate containing the other opium alkaloids, as well as the excess of the acetate of sodium.

The solution is first evaporated on a water-bath until the proportion of narceine amounts to more than ¼ per cent of the solution. [This will have to be ascertained by successive cooling of the solution until crystals form, and by a qualitative examination of the latter. If narceine is recognized, then the weight of the whole solution and crystals is noted, the whole well mixed and stirred together, an aliquot small portion, representing a true proportion of liquid and crystals, separated, filtered, and the crystals on the filter dried. This will give an approximate idea what the total weight of the crystals of narceine is, corresponding to the weight of the total liquid; hence it will be easy, after returning the separated portion of liquid and crystals, to continue the evaporation until the narceine amounts to more than ¼ per cent of the weight of the liquid.—Ed. Am. Dr.] The narceine having been allowed to crystallize out—which is rendered more complete by an increased concentration of the liquid—it is separated by filtration, and is, after washing, obtained as pure alkaloid.

The filtrate now contains thebaine, codeine, and morphine. On adding salicylate of sodium, only the thebaine is precipitated—at least 91 per cent of it. If the precipitate is filtered off after 48 hours, the pure alkaloid may be extracted from the precipitate by digesting in very dilute solution of soda or ammonia, then washed on a filter first with alkaline and then with pure water.

The next operation required is the removal of the remainder of acetate and salicylate of sodium, and the fractions of narceine and thebaine still present. Of these substances, all but the acetic acid must be removed before the codeine and morphine can be separated. For this purpose, the solution is mixed with diluted hydrochloric acid, the separated salicylic acid removed after a short time, and the acid filtrate transferred to a separator, shaken with chloroform which takes up, not only the still remaining trace of salicylic acid, but also the rest of the narceine and thebaine. Codeine and morphine do not pass over at all, or but very slightly, into the chloroform from the acid, solution. It is usually stated that narceine and thebaine are extracted only with great difficulty by shaking their acid solution with a solvent. Prof. Plugge, however, points out that no difficulty is encountered if chloroform is used, and free acetic acid is present, which is the case here, since the added hydrochloric acid has liberated acetic acid from the acetate of potassium.



Süss gas generator.

The final liquid, having been freed from chloroform by gentle warming, and containing codeine and morphine, is now treated with sulpho-cyanide of potassium. Plugge found that a solution of morphine containing as much as four per cent yields no precipitate with this reagent, while a solution of codeine of this strength is precipitated at once, and even more dilute solutions are precipitated after a while. Solutions of 1:200 when ice cold are rendered turbid by separated crystals already after a few minutes; such of 1:600 after 24 to 48 hours. If the solution of the two alkaloids is sufficiently concentrated, almost the whole of the codeine may thus be separated. From the final filtrate obtained, the whole of the morphine originally present is now to be extracted. It is only necessary to add a small but sufficient quantity of ammonia and to set the beaker aside for a while. The morphine will gradually separate in crystals, while the small amount of codeine still present will remain in solution. The sulpho-cyanide reagent is not effective enough to be used for a quantitative estimation of the codeine; but at least seventy per cent of this alkaloid may be separated, so that the subsequent precipitation of morphine by ammonia is not interfered with. The residual solution, if evaporated, yields the remainder of the codeine, which is naturally contaminated with a considerable quantity of morphine that had been retained in solution. If the morphine is to be extracted as much as possible from the liquid remaining after its precipitation through ammonia, it may be obtained by being shaken out with amylic alcohol.—After *Arch. d. Pharm.*, 1887, 343.

### Oil Emulsions without a Mortar.

E. **Kraft** recommends a simple method for preparing the so-called *Emulsio* or *Emulsio oleosa*, which forms a frequent constituent of the prescriptions of continental practitioners and is always prepared with oil of sweet almonds, unless another oil is expressly directed. These emulsions are always directed to be prepared in a mortar, which not only consumes some time, but is also accompanied by loss, as it is not practicable to transfer the whole of the contents of the mortar to the dispensing vial. The method recommended by Kraft consists in this, that the emulsion is prepared directly in the vial in which it is to be dispensed. For instance, if Expressed Oil of Almonds, 10 parts, is to be made into 100 parts of emulsion, proceed as follows:

First pour 7.5 Gm. of water into the vial; then the 10 Gm. of oil of almonds, and next 5 Gm. of best gum arabic in very fine powder, and shake energetically. After a while add gradually the remainder of the water. The resulting emulsion will be faultless.—*Pharm. Zeit.*

### Note on Pepsin.

**Some** recent experiments by M. Sundberg (*L'Union Pharm.* April, p. 145) appear to throw considerable doubt on the ordinary assumption that pepsin is of an albuminoid nature. The most superficial layer of gastric mucus was scraped from calves' stomachs, triturated with sodium chloride, and sufficient water added to make a saturated solution which, after standing two days, was submitted to dialysis to remove the sodium chloride. The solution of pepsin so obtained, though it possessed considerable digestive power, contained only traces of albuminoid matter; but in order to purify it further, the acidulated solution was kept for several days at a temperature of 40° C., after which calcium chloride and sodium phosphate were added and it was neutralized with very dilute ammonia. The precipitation had to be repeated two or three times to bring down all the pepsin, which was then washed, dissolved in a little 5 per cent hydrochloric acid, and the solution dialyzed. The solution after the removal of the salts was very active, but it no longer gave any of the reactions for albuminoid matter, yielding no precipitate with either neutral or basic lead acetate or platinum perchloride. Five or six volumes of absolute alcohol, however, caused the formation of a slight precipitate which, with acidulated water, gave a very active solution.—*L'Union Pharm.* and *Pharm. Jour.*

### Notes on Essential Oils.

(Continued from page 108.)

*Oil of Geranium* (*Rose-Geranium*).—The so-called Turkish oil of geranium will gradually lose its appellation "Turkish," which is becoming a misnomer. In view of the importance which this article has acquired, its passage through several hands, by way of Cairo and Constantinople, could naturally not be of long duration. At present, direct connections have been formed with India, its home of production. The so-called geranium or rûsa grass (*Andropogon Schœnanthus*) grows in immense quantities in Central India and the Northwestern Provinces. The oil distilled from this grass furnishes not only the fine geranium or palma-rosa oil, but also the ordinary so-called gingergrass oil. Yet in what relation these two oils stand to each other has so far not been determined. On the other hand, it is possible that the inferior oil is produced by diluting the original with oil of turpentine. Or, perhaps a special fraction of the oil of less agreeable odor is separately collected and sold as gingergrass oil.

The Indian geranium oil, *rûsa-ka tel* or "oil of Namur," was found by Stenhouse to be a mixture of a pure ethereal oil and a liquid resin, the latter undoubtedly produced by oxidation of the oil.

Most of the oil is now shipped by way of Trieste and London, the former route by way of Constantinople being gradually abandoned.

*Oil of Orris.*—This very delicate substance is easily injured by heat; hence it is distilled at as low a temperature as possible. 1,000 parts of orris root are required to produce 1 part of the oil (consisting really of a large proportion of myristic acid mixed with a minute fraction of the true essential oil). The attempts so far made to distil such oils in vacuo have not been successful.

*Oil of Crisp Mint.*—The German supply of this oil was soon exhausted, but the deficiency has been made up by American oil. [It is hoped that some attention will be paid in the United States to this oil, which forms an agreeable intermediary product between the oils of peppermint and spearmint. Formerly, American oil of crisp mint was reported to be largely adulterated with oil of turpentine, sassafras, etc. It is more than doubtful whether this was ever done by the distillers. There is no difficulty in obtaining the pure oil.]

*Oil Lavender.*—Regarding Mitcham oil of lavender, Schimmel & Co. state that it does not find a large market in Germany, "and quite properly so, since a like effect may be produced with really fine French oil and a little talent in mixing, at a much lower price."

Nearest to English oil of lavender in quality is the Spanish, but even this is only in slight demand.

*Oil of Lemongrass.*—The export of this oil from Ceylon has greatly diminished, being only 5,882 oz. in 1886. The largest part of the annual supply is furnished by India and the Malay Peninsula. The plant (*Andropogon citratus*, D. C.) is a coarse, hard grass, growing also in the West Indies. It thrives in a light soil, but requires much moisture.

*Oil of Limetta.*—The special attention of perfumers is called by Schimmel & Co. to the exquisite quality of the Montserrat hand-pressed oil, differing altogether from the often semi-rancid article formerly met with in the market.

*Oil of Linaloe* should never be used fresh, but should be allowed to age for a year or more. The difference in aroma thus produced is as great as that existing between fresh and old oil of lavender.

The principal consumption of this oil is in the preparation of the so-called lily-of-the-valley extract.

*Oil of Myrtle.*—The ordinary French commercial oil has found two rivals, one being a Spanish, the other a Corsican product, which are far superior to the first-mentioned. Particularly the last is very fine.

*Myrtol* is that portion of oil of myrtle which boils between 320°-338° F. Some time ago it has been recommended as a remedy in bronchial catarrh and similar affections of mucous membranes, but it is doubtful whether it will maintain the reputation.

*Oil of Balsam of Peru* is gradually replacing Balsam of Peru itself in perfumery, as it does not darken the color of the product.

The residue left after the essential oil or cinnamein has been distilled off from the balsam still has a faint odor. Schimmel & Co. explain that the distillate nevertheless represents practically the whole of the aromatic principle.

*Oil of Peppermint.*—We quote here what Sch. & Co. say about the Japanese oil: it remains to be seen whether Japan will continue to produce on the same scale as heretofore. If this is the case, and care is taken to constantly improve the product by proper cultivation, the Japanese oil will undoubtedly curtail the consumption of the American oil. For all internal purposes, such as liquors, confectionery, and the finer cosmetics, the pure American oil will, of course, always be preferred, as the Japanese product has a bitter after-taste which makes it unsuitable for internal use. All efforts which have been made by a certain firm in Japan to deny this fact have been demonstrated as useless by the unwillingness of purchasers to buy it for such purposes in spite of its ridiculously low price. On the other hand, it seems to us (Sch. & Co.) more rational to attempt the discovery and isolation of the body which imparts to the oil its bitter taste, and we believe to have closely approximated the solution of this problem. We regard the menthon ($C_{10}H_{18}O$) as the disagreeable accompaniment in the oil, and will probably be able, in our next report, to make some statements regarding it.

*Oil of Rhodium.*—The oil known by this name in commerce is a compound of different ethereal oils, among them oil of rose. Owing to the long period since genuine rose-wood oil has disappeared from the drug trade, and also owing to periodical "improvements," the compound now known as "oil of rhodium" has entirely lost its resemblance to the original. Sch. & Co. had occasion to observe this more especially after a small invoice of the genuine rose-wood, from *Convolvulus Scoparius L.*, had reached their hands probably from the Canary Islands. Unfortunately, this lot contains only a small amount of roots, which are the chief source of the oil; hence they could only obtain a small amount as a specimen for the present. This oil has a handsome, golden-yellow color, a very agreeable rose-like odor, and congeals, like oil of rose, already at 12° C. (ab. 54° F.) to needle-shaped crystals.

*Oil of Rose* (*Turkish*).—In spite of the political disturbances in Bulgaria, the price of oil of rose has rather declined than advanced. To a large extent this is due to the fact that only a very small fraction of the oil reaches the market in its pure condition, the remainder being more or less adulterated, in consequence of which the favor of the public and of the consumers has tended towards the natural substitute, viz., oil of rose-geranium. This is likely to be much more the case in the future, unless the producers realize the necessity of abandoning the ruinous principle of sophistication.

*Oil of Sandalwood, East Indian.*—Sandalwood trees are public property in India, and only such as have reached an age of 18 to 25 years are allowed to be felled, upon the approval of the Indian Forestry Department. The felling takes place near the end of the year; the trunks are deprived of bark, cut into logs, and then assorted according to quality. These logs constitute the sandalwood of commerce and are sold by auction to the dealers who convene from all parts of India. The finest sandalwood is obtained from the dark, ripe heart-wood. If the oil obtained from such wood is allowed to age a few years, its aroma attains a surprising fulness and sweetness.

An inferior and cheaper oil is furnished by the sandalwood grown in the Dutch East Indies, the chief market for which is Macassar.

*Oil of Sandalwood, West Indian.*—The use of this variety is steadily diminishing, the East-Indian oil being gradually substituted for it.

*Oil of Wintergreen, Synthetic.*—Schimmel & Co. take occasion to criticise the one-sided statements that have been made, even in American journals, regarding this product, some of them being made perhaps under a bias or prejudice in favor of the natural oil, which is not supported by facts. The opinion which we have previously advanced on several occasions—entirely unsolicited, of course, and solely based upon our own independent observation—that the synthetic oil, being an absolutely homogeneous chemical individual or unit, free from accompanying impurities such as are naturally inherent in the natural oil, will eventually take the place of the latter, is therefore likely to become true. We can state that the synthetic oil has been used for some time medicinally with the best results in the place of the natural oil.

*Oil of Ylang* is being produced in much larger quantities than formerly, but there are now several inferior grades offered, of which it is difficult to understand how they can find purchasers. The Dutch East Indies and Siam have also begun to put the oil on the market, but its quality is inferior to the best Manilla brands. Sch. & Co. deal exclusively in the product of Pablo Sartorius (of Manila), which they have always regarded as the finest brand of the market.

*Oil of Asarum Europœum.*—A new product. The roots yield 1.08 per cent of ethereal oil containing a large amount of Asarum-camphor (or *asaron*), which partly separates already at ordinary temperature.

*Oil of Water-Avens.*—The root of *Geum urbanum* yields an essential oil of very fine and aromatic cinnamon-like odor, from which crystals separate on standing. It appears to be worthy of practical employment.

*Oils of Kiku Leaves and Flowers.*—Japan has sent samples of two new essential oils, prepared respectively from the leaves and the flowers of kiku, regarding the use of which nothing is known so far, at least in European literature. Schimmel & Co. state that they will be able to communicate the botanical name of the plant from which they are obtained in their next report.

[The large Japanese botanical cyclopædia, "Sô-moku-zussets" of Iinuma Yokussai, of which one of us possesses a copy, contains a number of plants bearing the name *kiku* in composition; for instance: *Kiku-mugura = Galium triflorum* Michx; *Kiku-ozami=Saussurea ussuriensis* Max, etc. The term *kiku* alone is applied to *Pyrethrum chinense* Sabin, which we presume to be the plant from which these oils are derived (*Sô-moku-zussets*, vol. 17, plate 15).]

*Eucalyptol, pure.*—The recent employment of eucalyptol in French hospitals as a remedy in consumption, applied hypodermically, has made the production of a purer article desirable. It is now prepared in the following manner: Hydrochloric acid gas is conducted into the crude eucalyptol placed in a freezing mixture, whereby it is converted into a crystalline magma, which is pressed, dried, then decomposed with water, and finally rectified, furnishing a product which has a constant boiling point at 176° C., and a spec. grav. of 0.930 at 15° C. When placed in a freezing mixture, it crystallizes in magnificent long needles, melting at −1° C., which may be regarded as a test of purity.

*Menthol.*—The chief industry in the environs of Yonezawa in the Japanese province of Dewa is the production of menthol and oil of peppermint. After the menthol-cones began to make their appearance in Europe, the production was gradually enlarged, and the price advanced to 8 yen (dollars, silver) per catti (1 lb. 5 oz.) of menthol, and 4 yen per catti of oil. During 1885, however, the price fell 50 to 60 per cent, causing considerable loss. During 1885, about 154 chests were exported, each chest containing 25 lbs. of menthol and 50 lbs. of oil. Twelve months later, the price had fallen 50 per cent further, the enterprise entailing, therefore, considerable loss upon the producers or dealers. The value of oil of peppermint and of menthol exported from Japan amounted to

| | | |
|---|---|---|
| Yen (dollars) | 14,671 | in 1882. |
| " " | 13,084 | " 1883. |
| " " | 25,787 | " 1884. |
| " " | 42,868 | " 1885. |

The exports in 1886 fell off very greatly, and there is no prospect of any successful resumption of the large export of menthol, *since the problem of the conversion of the liquid oil of peppermint into crystalline menthol has been completely solved*, according to the positive assurance of Schimmel & Co.

Mention is made of the newly proposed "mentholeatum," consisting of a solution of menthol in oleic acid (proposed by Prof. Remington). At the same time, the remark of the editor of the *Pharmaceutische Zeitung* is mentioned who asks whether the "old olive oil is not preferable for this purpose." We would state, *en passant*, that we do not think it would answer as well for this purpose. It is well known that oleic acid is very rapidly *absorbed* by the skin; hence any substance it holds in solution is apt to reach the underlying tissues much more rapidly. Olive oil and all fatty oils are good demulcent *coatings* of the skin, but they are rather repelled by it and probably not absorbed at all.

The report also mentions an ointment for neuralgia which has lately been recommended in American journals and which we will repeat here:

| | |
|---|---|
| Menthol | 45 grains. |
| Cocaine (alkaloid) | 15 " |
| Chloral | 10 " |
| Vaseline | 300 " |

*Safrol.*—An idea of the large consumption of oil of sassafras, or rather the pure safrol, may be gained from the fact that Sch. & Co. produce 1,500 kilos per week. There is no doubt that this will eventually take the place of the natural oil, provided its source, the oil of camphor, remains as accessible hereafter as it has been hitherto.

*Specific Gravities.*—At the end of their report, Messrs. Schimmel & Co. append a table of specific gravities of essential oils, observed in samples of known origin and purity, which is a valuable contribution to pharmaceutical literature and here reproduced:

**Specific Gravities**

of some of the principal commercial Volatile Oils observed upon normal Samples of known Purity. Published by Schimmel & Co., of Leipzig.

| OIL OF | TEMPERATURE. | | | REMARKS. |
|---|---|---|---|---|
| | 10° C 50° F | 15° C 59° F | 20° C 68° F | |
| Angelica | 0.860 | 0.858 | 0.858 | |
| Anise | ..... | 0.985 | 0.980 | |
| " extra, Anethol | ..... | ..... | 0.985 | At 25° C.—Melts at 21–22° C. |
| " Star | 0.990 | 0.985 | 0.980 | |
| Bergamot, best Reggio | 0.887 | 0.883 | 0.880 | |
| Bitter almond | 1.063 | 1.060 | 1.055 | Average 1.060. |
| Cajuput, green | 0.927 | 0.925 | 0.922 | |
| Calamus | 0.961 | 0.959 | 0 957 | |
| Caraway, *Carvol* | 0.967 | 0.963 | 0.958 | Average 0.962-0.965. |
| " twice rect. Germ. | 0.905 | 0.900 | 0.886 | |
| " " " Dutch. | 0.911 | 0.908 | 0.905 | |
| Cardamom, Ceylon | 0.902 | 0.900 | 0.897 | |
| Cassia buds | 1.058 | 1.055 | 1.052 | |
| " rect | 1.073 | 1.068 | 1.063 | Average 1.050–1.060. |
| Cedarwood | 0.948 | 0.945 | 0.940 | |
| Cinnamon, Ceylon | 1.035 | 1.030 | 1.027 | |
| Citronella (East India Oil Melissa) | 0.900 | 0.896 | 0.893 | |
| Cloves, fr. buds | 1.065 | 1.062 | 1.059 | Average 1.060–1.065. |
| " " stems | 1.065 | 1.061 | 1.057 | " 1.060–1.065. |
| Coriander | 0.872 | 0.867 | 0.864 | " 0.860–0.870. |
| Cubeb | 0.918 | 0.915 | 0.912 | |
| Cumin | 0.925 | 0.922 | 0.918 | |
| Dill | 0.905 | 0.900 | 0.896 | |
| Eucalyptus (globulus) | 0.925 | 0.922 | 0.918 | |
| " *Eucalyptol* | 0.935 | 0.931 | 0.928 | |
| Fennel-seed, rect. | 0.975 | 0.970 | 0.965 | Average 0.965–0.975. |
| Ginger | 0.885 | 0.882 | 0.878 | |
| Juniper, doubly rect. | 0.863 | 0.858 | 0.855 | |
| Lemon | 0.856 | 0.854 | 0.851 | |
| Mace | 0.858 | 0.855 | 0.852 | |
| Mirbane | ..... | ..... | 1.200 | |
| Mustard, genuine | 1.030 | 1.025 | 1.020 | |
| " artif. | 1.025 | 1.020 | 1.016 | |
| Orange, sweet (Portugal) | 0.854 | 0.850 | ..... | |
| Peppermint, F. S. & Co. | 0.906 | 0.903 | 0.901 | Average 0.900–0.910. |
| " Mitcham. | 0.905 | 0.900 | 0.898 | " 0.900–0.905. |
| Sandalwood, best East Ind. | 0.978 | 0.975 | 0.973 | |
| Sassafras | 1.068 | 1.065 | 1.060 | " 1.050–1.070. |
| " *Safrol* | 1.109 | 1.104 | 1.100 | |
| Valerian | 0.947 | 0.945 | 0.940 | |
| Wintergreen, natural | 1.189 | 1.185 | 1.182 | |
| " synthetic | 1.192 | 1.187 | 1.183 | |

## Influence of Form of Administration upon the Action of Remedies.

IODIDE of potassium in 5-grain doses given in a half-ounce of water a half-hour before meals will relieve bronchitis in four days, when the same dose in two ounces of water taken after meals fails for weeks to give relief.

*Iron* given in an effervescent mixture will often rapidly show its good effect in anæmia, when it does no good or positively disagrees in other forms.

*Morphine*, which in aqueous solution fails to relieve cough, will do so promptly if dissolved in a small amount of viscid menstruum.

*Sulphate of Magnesia.*—Six or eight drachms given in just as much hot water as will serve to dissolve it, and taken early in the morning with subsequent deprivation of drinks, is of undoubted value in relieving pleural effusion. When given freely diluted it exercises no good effect whatever.

*Nux Vomica, Digitalis, Belladonna* (and probably other drugs) are more effective when given by mixing the tincture just before administration, with a little water, than when combined in mixtures in which they often are in contact with alkaline salts for days.—DR. J. LITTLE, in *Dublin Med. Jour.*

THE

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## EDITORIAL.

THE term of office of the Board of Pharmacy of the City and County of New York having expired, an election was held on Monday, June 6th, by the members of the College of Pharmacy, which resulted in the choice of the following gentlemen: Dr. William Balser (re-elected), Dr. Cyrus Edson, Dr. George G. Needham (re-elected), Mr. B. F. Hays, and Prof. P. W. Bedford (re-elected). A somewhat animated discussion arose regarding the apparent inactivity and inaggressiveness of the Board as formerly constituted, the impression having commonly prevailed that the Board had not fully performed its duties, as it did not institute proceedings against transgressors. Dr. William Balser, however, the efficient Secretary of the Board for many years past, showed that the condition of things was much more favorable than had been imagined, inasmuch as a pretty close account had been kept of those persons who newly established themselves, and in the majority of instances, these persons presented themselves for examination when called upon. The Board appears to have had more difficulty with graduates of pharmacy than with others. Graduates are entitled to be registered by the Board without further examination. Knowing this fact, and probably surmising that the registration of their names by the Board of Pharmacy is merely a trifling clerical act, they have in a number of instances been very dilatory about it, even so far as to neglect to pay attention to repeated summons by the Board. We desire to advise these gentlemen that they not only expose themselves to the full penalty provided for by the Pharmacy Act, but that shey should give an example of prompt obedience to the law rather than to appear to despise it. The profession looks to the educated members for its main support, and for a dignified representation before the public. Pharmacy laws were established to protect the public against the dangers arising from the incompetency and ignorance of the uneducated interloper. It is, therefore, the bounden duty of those who have the good of their profession at heart—and among these the graduates of our colleges are supposed to occupy the front rank—not only to see the law properly executed by others, but to be themselves obedient to it, promptly and cheerfully.

THERE is no doubt in the minds of those who have studied the question thoroughly, that the present Pharmacy Law of the City and County of New York is not perfect, and needs improvement. It is a pity that we have so many separate pharmacy laws in this State—one for the City and County of New York, one for Kings County, one for Erie County, and a fourth for the remainder of the State. We have not the least doubt that the time is not distant when these separate laws will be wiped from the statute book, and be replaced by one uniform law for the whole State. It must be conceded that had such a law been established in the beginning, it would have entailed injury, either to the population in the large cities, or seriously injured the business of the pharmacists in the small towns and the country. The demands upon the pharmacist in the large cities are such that a comparatively high grade, and in many cases a very high grade, of professional education is absolutely necessary for the satisfactory performance of his duties. In the small towns and in the country, this may not be always so necessary; at least the small amount of purely professional duties that constitutes part of the volume of business of a country pharmacist did not perhaps justify him in engaging the high-priced services of a trained assistant. In compliance with this recognized condition of things, Pharmacy Boards were at first confined to the large cities of New York and Brooklyn. The increasing number of graduates of pharmacy, however, and the more active participation of members of the profession from all sections of the State in the pharmaceutical meetings, has brought about a gradual approximation of the standard of education required of the country pharmacist to that of his confrères in the large cities. Indeed, there are many of the best educated men situated in the country, and a fair count would probably show that the large cities contain about an equal proportion of poorly educated members as may now be still found in the country. These considerations, as well as the successful establishment and working of single pharmacy laws in other States, likewise possessing very large cities, make it pretty certain that the enactment of a single pharmacy law for the whole State of New York is a thing to be brought about in the near future.

THE Editors of the *American Practitioner* very shrewdly inquire just what we are to understand by the statements, so commonly met with in medical journals, that the use of such or such a remedy was attended with "good results."

THE number of pharmaceutical chemists in Great Britain at the close of 1886 was 2,198, and the number of chemists and druggists was 11,249; a total of 13,447. During the year the number registered in both classes diminished by 120.

◆

**Stanislaus Limousin**, the well-known French pharmacist, died on April 7th, at the age of fifty-five years. He has been connected with many important advances in pharmaceutical practice and literature, but abroad he is probably best known through his wafer capsule apparatus, which has been introduced in every country.

**Prof. Victor C. Vaughn** is to have charge of the School of Hygiene to be organized in connection with the University of Michigan and under the direction of the State Board of Health.

**Boussingault** (Jean-Baptiste-Joseph-Dieudonné), the celebrated chemist,. died on May 12th, in Paris, his native place. He was born in 1802. After graduating at the St. Etienne School of Mines, he was sent by an English company to South America to reopen old abandoned mines. He was at first successful, and found time to publish observations on tropical phenomena, which attracted much attention, notably on the part of Humboldt, who was then working in the same field. But soon war broke out between Spain and its colonies, and Boussingault was obliged to abandon the enterprise. He joined the staff of Bolivar, the *Libertador*, but remained ever more of a scientist than a soldier, exploring to great advantage Bolivia, Venezuela, and the country situated between Carthagena and the mouths of the Orinoco. Returning to France in 1833, he was appointed a professor of chemistry to the Lyons Faculty of Sciences, and soon was elected to the presidency of the same faculty. In 1839, he was elected to the Academy of Sciences, and accepted the chair of agricultural chemistry at the Paris Conservatory of Arts-et-Métiers. For a while, he wasted his time on politics, during the short-lived Republic of 1848, but soon returned to his favorite study—chemistry. The application of the science to agriculture was the branch he selected. His more important works bear upon the management of soils, feeding of cattle, analysis of manures, composition of atmospheric air, rural economy, and agricultural and physiological chemistry.

**The Wholesale Druggists' Life Insurance Company**, recently chartered under the laws of Pennsylvania, is to have its main office in Philadelphia. Robert Shoemaker has been made the president, and Edward H. Hance the secretary. The company will have a guarantee fund of $100,000, and the patronage is limited to wholesale druggists, of which there are estimated to be 650 in the United States. Risks amounting to more than $100,000 were offered at the date of incorporation, and a business of $1,500,000 is expected within the first year. An executive committee of 35 has been appointed, including the 9 directors required by Pennsylvania laws to be residents of that State.

**Juries for the coming French Exhibition.**—M. Edouard Lockroy, the Minister of Commerce and Industry, appointed, on March 12th, the admission committees for most sections of the International Exposition for 1889.

For Class 45, chemicals and pharmaceuticals, an admission committee of twenty-five members has been appointed, as follows:—Messrs. Armet de Lisle, quinine manufacture; Barbe, dynamite; A. Blouet, glue and oils; de Bonnard (of Coignet & Co.); Senator Léon Chiris, essential oils; Ph. de Clermont, professor; Debray, academician; Felix Dehaynin, expert; D. Gernez, professor; A. Gicquel, pharmacist; C. Guibal, india-rubber; Ernest Hardy, expert; Houet, paints and varnishes; Jules Kolb, chemical manufacturer; Lindet, professor; Linget, glycerin; Nicolas-Victor Masson, military pharmacist; Senator Naquet, chemist, author of the divorce law; E. Péligot, professor; A. Poirrier, aniline colors; Alfred Riche, professor at the College of Pharmacy; Senator Scheurer-Kestner, chemist; Froost, professor; A. Vée, wholesale druggist; Frederic Wurtz, pharmacist, a son of the late Ch. Adolphe Wurtz.

For Class 28, perfumery, the following have been appointed:—Messrs. A. Chouët (firm of Dr. Pierre); Edmond Coudray; Gallet père; Oume Guerlain; Lecarron (firm of Gellé); L'Hôte, expert; Pivěr; Paul Prot (firm of Lubin) A. Raynaud.—*Chem. and Drugg.*

**The Amsterdam Quinine Works.**—In the *India Mercury*, some additional particulars are given concerning the future of this concern, which was recently sold by public auction at about £8,400. It is proposed to furnish the works with improved machinery for the extraction of alkaloids from cinchona bark, and thus to increase the producing capacity from 8,000 lbs., the former standard, to 18,000 lbs. per annum. This will entail an outlay of about £2,800. The works will resume operations with a capital of £21,000, of which the public will be invited to contribute £8,500, in shares of 500 florins, or about £42 each. The purchaser of the concern, Mr. W. Sieger, together with a few well-known Amsterdam firms, among which are the Dutch Trading Company, S. B. Zeveryn, A. d'Ailly & Sons, and C. F. Boehringer & Sons, of Mannheim. The latter firm will take over technical management of the new company, and a chemist trained at their Mannheim works has been appointed technical manager of the Amsterdam manufactory.—*Chem. and Drugg.*

**The British Pharmacopœia.**—In the course of the proceedings of the British General Medical Council, the Pharmacopœia Committee reported that, up to the present time, 22,925 copies of the edition of the [new British] Pharmacopœia of 1885 have been sold. The production of the work, including the first reprint, has cost £3,475 9*s.* 3*d.*, and the amount received has been £4,519 6*s.* 11*d.* Including 75 copies on hand, this leaves a balance to the good of £1,047 17*s.* 8*d.* Another reprint of 3,000 copies from the stereotype plates has been ordered. Dr. Attfield has submitted a first annual report on the Pharmacopœia.—*Chem. and Drugg.*

**Harvard's** two hundred and fiftieth anniversary and Columbia's one hundredth seem insignificant when we read that the University of Bologna will next spring celebrate the eight hundredth anniversary of its supposed foundation, the exact date of which is not known.

**North Carolina Pharmaceutical Association.**—The eighth annual meeting of this Association will be held at Asheville on Wednesday, August 3d. Mr. W. C. Carmichael, of Asheville, is the Local Secretary, and Mr. A. W. Rowland, of Wilson, the President.

**Massachusetts College of Pharmacy.**—At the annual meeting, held Monday, June 6th, the following officers for 1887-'88 were chosen: President, Henry Canning; vice-presidents, Samuel A. D. Sheppard, Ph.G., William C. Durkee, Ph.G.; recording secretary, Charles C. Williams, Ph.G., M.D.; corresponding secretary, William F. Sawyer; treasurer, H. K. Appleton, Jr., Ph.G.; auditor, Linus D. Drury, Ph.G.; trustees, Solomon Carter, E. Waldo Cutler, Benjamin F. Stacey, John G. Godding, Ph.G., George M. Hoyt, Ph.G., Charles A. Siegmund, John G. Benedict, Ph.G., John W. O'Mealey, Ph.G.; actuary, Charles C. Williams, Ph.G., M.D.

**American Pharmaceutical Association.**—The following programme of entertainment has been arranged by the entertainment committee:

*Tuesday evening*, September 6th.—Reception and promenade concert at the Grand Hotel, tendered to all visiting members by the druggists of Cincinnati.

*Wednesday evening*, September 7th.—Vocal and instrumental concert at Music Hall. The great organ, the second in size in the world, may be heard to excellent advantage on this occasion. The concert will be given under the auspices of the "Apollo Club," a trained chorus of 40 male voices.

*Thursday evening*, September 8th.—Entertainment to be provided for by the committee.

*Friday*, September 9th.—Carriage drive through the city and suburbs, visiting Eden Park, the West Museum of Art, Walnut Hills, Avondale, Clifton; ending at the Zoological Garden with a banquet.

Visitors desiring to leave for their homes can reach the city in time for early evening trains. Visiting ladies will be entertained by the local committee of ladies, and carriages placed at their disposal during the convention.

### Spent Ginger.

We have recently referred to the use of spent ginger as an adulterant of pepper. For some time, it is reported, this useless material has been employed for adulterating ordinary ginger. The diminished pungency is counteracted by soaking the ginger in an infusion of capsicum. The ginger is then put through a drying process, and afterwards ground, but as there are no visible particles of capsicum, the adulteration cannot be detected by the eye, and an analysis, which the purchaser does not care to have made, has to be resorted to. The ginger so prepared is stated to go entirely into the hands of those aërated-water makers who have to meet the demand for a very cheap article. Latterly, however, capsicum itself has been resorted to by many of these manufacturers, and their "ginger" preparations have not a trace of the agreeable flavor of ginger.—*Chem. and Drugg.*

### Flavoring Extracts.

Cooks, confectioners, and others engaged in the preparation of food and drinks are in the habit of using various artificial perfumes, which in chemical language are such bodies as amylic valerianate, amylic butyrate, ethylic butyrate, propylic ether, and caprylic alcohol. The odor and flavor of the apple, the pear, the pineapple, the strawberry, and the raspberry can thus be imitated. The imitations not only remove the necessity for the use of the natural fruits, but are less expensive, and, besides having perfect similitude with them, give the appropriate flavor in a more accentuated form.

MM. Poincare and Vallois have sought to ascertain whether these artificially prepared perfumes possess poisonous properties by injecting them under the skin of animals, as well as introducing them into the stomach. Dogs and guinea-pigs can withstand even large doses of these substances when injected under the skin; but these animals can be poisoned by sufficiently large doses, and then the symptoms set in rapidly. The most constant toxic symptom was great prostration, which was followed in a variable time by coma. These phenomena were less marked in the dog than the guinea-pig. All the animals were troubled with violent nasal irritation and sneezing, and distressed breathing was always evidenced by over-action of the respiratory muscles. An excessive secretion of mucus from the bronchial tubes was also noticed. Notwithstanding the gravity of the symptoms, the majority of the animals recovered. The practical outcome of these experiments is to sanction the use of infinitesimal doses, such as are already employed for artificial flavoring of aliments.—*Zymotechnic Magazine.*

[It is worthy of note that in the case of many of these artificial flavors, the resemblance to the natural flavor is greatest in their odor, and that the impression upon the sense of taste is not equally apparent.—Ed. A. D.]

### More New Elements.

Alexander Pringle has announced to the British Association the discovery of several new elements in veins contained in quartz of silurian rocks, found on his country seat in the county of Selkirk. One of these elements which is very difficult to separate from various other elements—in fact, it appears to occupy a position between several of the usually recognized analytical groups—has been provisionally called *polymnestum* (Pm). Another, related to iron, has not been named so far. A third, which has the molecular weight 95.4, is black like charcoal, and has been named *erebodium* (Eb). A fourth, having the molecular weight 43.6 or thereabouts, has been called *gadenium.* A fifth, which resembles lead in color and softness, is easily melted, forms yellow and green salts, and otherwise much resembles nickel and cobalt, has remained unnamed so far. Finally, a sixth element, a metalloid of a sunset red metallic lustre and a molecular weight of 43.2, has been called hesperin or *hesperisium* (He). [Why not preferably *hesperium*?—Ed. Am. Dr.]—After *Deutsch. Chem. Zeit.*

### Notes on Camphor.*

THE area of distribution of the *Cinnamomum Camphora* is an extensive one, including not only the greater part of China proper, especially the southeastern and eastern littoral, but also the islands of Hainan and Formosa and the southern part of Japan to about 36° northern latitude. But it may be taken for granted that very little, if any, of the camphor produced on the Chinese mainland is ever exported; in fact, there are reasons to believe that the trees have been exterminated in many provinces, and that the Chinese may ere long themselves be entirely dependent upon the foreign article for their home consumption. On the island of Hainan the camphor industry is of very little importance, and from a commercial point of view Formosa and Japan are therefore the only countries which need be taken into account when reviewing the probable future of the article. The Formosa Camphor, which is grayer in color, and generally damper than the Japanese variety, reaches our market in cases of about 1 cwt., and its price is on an average from 2s. to 2s. 6d. per cwt., or say about 4 per cent below that of the Japanese camphor.

The island of Formosa, nominally tributary to China, is inhabited by one of the most savage races on the face of the globe. Various attempts on the part of European nations to obtain a hold on the island have failed, but of late the Chinese have been making a determined and apparently successful attempt to subjugate the country by the practical though by no means easy expedient of exterminating the aborigines by fire and sword. Bands of Chinese from time to time make an excursion into the interior in order to collect camphor (for along the littoral the trees are all but exterminated) and carry the crudely-distilled article to Tamsui, the principal part of the island, where it is packed in tubs and shipped mostly to Hong Kong. Upon its arrival at that port it is repacked into cases and distributed to Europe, America, and various Asian countries.

It appears that formerly some sort of rough control was exercised over the camphor-distilling parties by requiring the collectors to take out a Government license. Quite recently, it seems, camphor distilling has been made a Government monopoly by the Chinese authorities, who are governing the island; and, since the Chinese invasion has been crowned with success, the exports of camphor, which in 1884 and 1885 had dwindled to next to nothing, have again assumed very much larger proportions.

The mountains in the interior of Formosa, especially in the northern part of the island, are still covered with camphor trees, but these are ruthlessly destroyed as the Chinese invasion progresses, and their place is taken by other cultures, such as tea and indigo, which yield a much quicker return. The total extinction of the camphor-laurels in Formosa is therefore, to all appearances, a question of, perhaps, not more than twelve or fifteen years, at the end of which period the Chinese camphor of our markets may have become a thing of the past.

The probable future of the camphor industry in Japan is to some extent a matter of conjecture, as it is difficult to obtain entirely reliable data; but a careful comparison of the information vouchsafed by the most trustworthy sources favors the assumption that in this country also the destruction of camphor laurels has, for some time at least, been proceeding at a much faster pace than the raising of new trees.

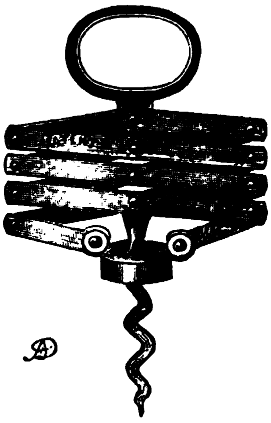
Japan now yields about three or four times as much camphor as Formosa. The Japanese provinces of Tosa and Satsuma are the centres of the camphor industry. The product distilled there is taken to the capital of Tosa and shipped to Osaka, where it passes into the hands of European dealers, who export it via Hiogo. Large quantities are also obtained in Kin Sin, the southernmost island of Japan, and brought into commerce partly via Nagasaki, the only port on that island, and partly via Shanghai and Hong Kong, to which ports the camphor is conveyed by native craft.

### Danger Attending the Use of Pure Terebene.

DR. HARVEY, of Birmingham, describes in the *British Medical Journal* the case of a man aged 56, a chronic asthmatic, who suffered from the beginning of December with severe bronchitis, with profuse muco-purulent expectoration: "On December 21st, he began to take pure terebene (ten drops on sugar every four hours) with great advantage, the expectoration diminishing to *nil*, and the dyspnœa being much relieved. After the treatment had been continued for three days, the patient was seized with intense pain in the region of the left kidney, shooting into the pelvis and down the left thigh, with blood in the urine and severe strangury. Cessation of the terebene treatment, together with the use of poultices and the administration of opium internally, resulted in speedy relief, and left little doubt that the condition was one of intense renal congestion caused by the terebene."

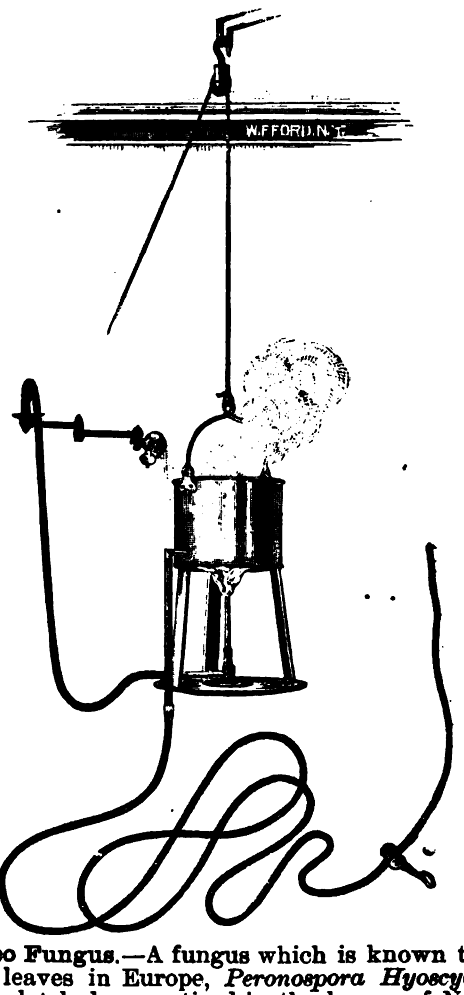
### LEVER CORKSCREW.

THE lever corkscrew which is here illustrated is a German contrivance for opening bottles, which is based on the principle of the so-called "lazy tongs," and is very simple. While shut, the corkscrew is firmly screwed into the cork, and traction is then made at the handle. This causes the "tongs" to spread and to press upon the neck of the bottle, at the same time while the screw-portion bearing the cork is lifted by the double leverage. The removal of corks is greatly facilitated by this contrivance, and the bottle is protected against fracture by the simultaneous application of the lever at both sides. The little apparatus, therefore, fulfils the purpose of removing corks rapidly and safely. Price, 4.50 marks; free of postage, 5 marks. Apply to E. Cohn. Berlin, S. W., Leipzigerstrasse 88.



### APPARATUS FOR HEATING FLUIDS USED UNDER PRESSURE.

D. GEORGE E. BREWER, in the *Jour. of Cutaneous and Genito-Urinary Diseases* describes an apparatus which he has used for urethral injections, which might be made available in pharmaceutical processes, as for example, where filtration under pressure requires the liquid to be kept hot. We here reproduce the illustration which requires no explanation. A desirable addition to such an apparatus would be a thermometer with coarse registration.



**Tobacco Fungus.**—A fungus which is known to affect henbane leaves in Europe, *Peronospora Hyoscyami* DE BARY, has lately been noticed in the leaves of *Nicotiana glauca* in California, and it is feared lest it may spread to the tobacco plantations in the United States (*Nature*, March 31st, p. 321). As this fungus has been found in England, there is a possibility of its spreading to the tobacco cultivated in this country, which grows under conditions less favorable to its vitality than in the United States.—*Pharm. Journ.*

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* From an editorial article on camphor in the *Chemist and Druggist* (May 21st).

## The Therapeutic Value of Oleum Hyoscyami and of other "Olea cocta."

As is well known, the oleum hyoscyami and other "oils" of narcotic herbs are merely olive oil (or some other bland fatty oil) which has been impregnated by heat or other means with whatever constituents were soluble in the oil. Generally more stress has been laid upon the appearance of these preparations than upon their alkaloidal contents, a handsome green color being above all highly prized.

Mr. Dieterich has recently examined some of these products, made by himself with all possible care. Having previously analyzed the extract made from the same hyoscyamus which was utilized in the preparation of the "oleum hyoscyami," and having found this to contain at least 0.75% of hyoscyamine, he ascertained that a corresponding portion of the oil contained only about $\frac{1}{10}$th of this quantity of alkaloid. Before describing his modus operandi in the assay of the oil, we will give a brief abstract of his method of assay of extract of hyoscyamus and of other extracts:

Triturate 0.2 Gm. of powdered lime, made by ignition from marble, with 3 Gm. of water; and mix this well with 2 Gm. of the extract to be examined (assuming it to be either belladonna, conium, aconite, or hyoscyamus). When it is dissolved, add 10 Gm. more of powdered lime, and rub until a dry powder results. By means of a continuous extraction apparatus, extract the mass, packed in a little glass-cylinder, with ether. In the case of belladonna, aconite, and hyoscyamus, the extraction will be completed in about 45 minutes. In the case of conium, at least two hours will be required. To make sure, the extraction with ether ought to be repeated. Transfer the etheral solution to a capsule, rinsing the flask in which it has been contained with ether. Add 1 C.c. of distilled water and evaporate the ether carefully on a water-bath at a temperature not exceeding 30° C. (86° F.), taking care that no vapors of any volatile acid (nitric, hydrochloric acetic, etc., acid) come in contact with it, to prevent even the slightest trace of the respective alkaloids from being neutralized. Dissolve the final residue in 0.5 Gm. of diluted alcohol (sp. gr. 0.892), dilute the solution with 10 C.c. of distilled water, add 1 or 2 drops of rosolic acid solution (1 : 100 alcohol), titrate with $\frac{1}{100}$ normal sulphuric acid—that is, such as contains 0.049 Gm. of $H_2SO_4$ in 1 liter, or of which 1 C.c. contains 0.00049 Gm. of $H_2SO_4$.

Each cubic centimeter of this acid neutralizes, respectively, according to the author:

0.00289 Gm. of atropine or hyoscyamine,
0.00523 Gm. of aconitine,
0.00127 Gm. of coniine,

For extract of belladonna, the author had found the results to vary between 1.142 and 1.184 per cent in alkaloids.

Extract of Aconite, between 1.252 and 1.305.
Extract of Conium, 0.589 to 0.622.
Extract of Hyoscyamus, 0.551 to 0.780 per cent.

Coming back now to the Oleum Hyoscyami, we will give the process followed by the author in assaying it.

500 Gm. of the oil were shaken with 4 successive portions of 200 Gm. of alcohol mixed with 4 drops of diluted sulphuric acid. The united liquors were filtered and evaporated on a tared capsule at a gentle heat (not exceeding 60° C. = 140° F.) until the residue amounted to 10 Gm. This was mixed with 50 Gm. of water in a test-tube, the mixture well shaken, filtered through a wetted filter, and the residue left behind once more treated in the same manner. The united acid filtrates were again evaporated below 60 C., triturated with two Gm. of powdered lime, afterwards with 10 more Gm. of the same, and the mixture extracted with ether precisely as described in the preceding process. The ethereal extract was evaporated to 1.5 Gm., mixed with 0.5 Gm. of diluted alcohol (0.892), and then with 10 Gm. of water. Next 1 drop of solution of rosolic acid was added, and lastly enough of the $\frac{1}{100}$ sulphuric acid, of which 3.5 C.c. were consumed, which correspond to 0.010115 Gm. of hyoscyamine in the total 500 Gm. of the oil.

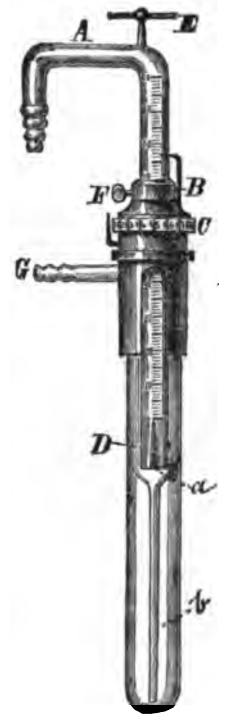
Diederich states correctly that the process followed in making these oils from narcotic herbs is faulty in this, that the alkaloids are not set free from their salts so as to enable them to be dissolved by the oil. He therefore proposes to set the alkaloids free by the use of ammonia, which has the further advantage that it greatly increases the brilliancy of the green chlorophyll color upon which so much weight is laid. He found that this use of ammonia increased the quantity of hyoscyamine contained in the oil to triple the amount present in the ordinary preparation. The process he recommends is as follows:

Mix 20 parts of water of ammonia (sp. gr. 0.960) with 750 parts of alcohol, moisten with it 1,000 parts of coarsely powdered hyoscyamus leaves, firmly press the damp powder in a porcelain vessel, tie parchment paper over it and let it stand 12 hours. Next transfer it to a large porcelain vessel, pour upon it 5,000 parts of olive oil, stir well, and heat it, under occasional stirring, upon a steam bath at a temperature of 50°-60°C. (122°-140° F.). Then express and filter. A higher temperature results in loss of alkaloid.—After *Rundschau* (Prag), No. 17.

## AN IMPROVED THERMO-REGULATOR.*

The most effective and most easily adjusted thermo-regulator so far proposed, appears to be that of Prof. Lothar Meyer, of which we give a description here.

*A* is the tube through which the gas enters. The inner end of this tube is not contracted, but maintains its diameter to the end, but it has a very acute triangle cut out near the end (as shown by the shaded space *a* in the cut). This triangular opening must be made with the greatest care, the edges perfectly straight and smooth (not sharp) and running to a fine slit at the top, so that the current of gas may be adjusted as delicately as possible. The reserve opening at *D* must be made just small enough to prevent the burner from going out, while it should not, on the other hand, allow so much gas to pass as would sensibly increase the heat. The gas-tube *A* is ground gas-tight into the neck *B*, which is portion of the metallic mounting of the outer tube of the regulator. This outer tube contains, at its lower end, the reservoir of mercury, which fills the space *b* and rises in the narrow funnel-shaped tube, by expansion, until it partly or entirely covers the triangular slit of the gas-tube at *a*. By raising or lowering the gas-tube (*A*), the admission of gas to the burner is regulated. The rough adjustment is made by means of the handle *E*, with which the tube may be raised or lowered in the neck. It is then fastened with the set-screw *F*. The fine adjustment may now be made by turning the micrometer screw *C*, which causes the upper portion of the metallic neck to rise or to descend according as it is turned. As one revolution of the screw causes a rise or depression of the tube by ½ millimeter, and the circumference of the screw is divided into twenty degrees, it follows that the adjustment may be brought to $\frac{1}{40}$ millimeter. But it is easy to make the graduations so that the rise or depression of the gas-tube by 1 Mm. will indicate a change of temperature by exactly 0.1 degree (centigrade), or a multiple thereof. Consequently, it is possible to adjust the temperature of an apparatus (drying oven, etc.) by means of this instrument to $\frac{1}{100}$ of a degree.



As is evident from the shape of the regulator, it is intended to be introduced, by means of a perforated cork, into a neck of the drying apparatus or drying oven. The gas main is connected with *A*, and the burner with *G*, by means of rubber tubing. Recently it has been shown by Alex. Kaleczinsky that more accurate and constant results are obtained, and less annoyance is experienced from the volatilization of the mercury, if the thermo-regulator is kept outside of the drying oven, and a plain empty glass-tube filled with air fitted into the regulator (compare our July number, 1886, page 133).

In our opinion it would be a simple matter to combine the salient features of both of these instruments. Were the attachment for accurately regulating the adjustment of the inner tube by a graduated scale and a micrometer screw combined with the principle involved in Kaleczinsky's apparatus, in which the regulator proper is never exposed to direct heat, we believe that the apparatus would become still more exact and practical.

## Assaying Laudanum.

A READY method of assaying laudanum, recommended by Chas. Bullock, consists in evaporating the tincture on a water-bath to ¼, and adding to the thick fluid extract enough pure kaolin (white china clay) to form a thick paste. Water is then added gradually, with stirring, to make it a homogeneous mixture, which is then transferred to a wet filter. After the liquid has filtered through, wash the remainder until the filtrate is clear and ceases to be bitter. The washings are evaporated and added to the first filtrate, which is then tested for morphia in the usual way. The kaolin serves to separate the particles of resin, and permits complete extraction of the soluble portions.

* * *

**Purpura Hemorrhagica from taking Coal-Oil.**—DR. P. GUNTERMANN reports a case of a boy about five years old who suffered from purpura hemorrhagica from swallowing about two tablespoonfuls of coal-oil.—*Amer. Pract. and News*, May 14th, '87.

**The Expressed Juice of Rumex Acetosa** is recommended by Dr. J. Lamb, of Aurora, Ind., as an escharotic application to epithelioma in cases where operative measures are inadmissible.—*Jour. Amer. Med. Assoc.*

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* After Deutsche Chem. Zeit., No. 28.

## On Color Tests for Strychnine and other Alkaloids.

THE following characteristic and delicate test for identifying strychnine does not appear to have been noticed. The alkaloid on a glass slide or a porcelain crucible lid, is dissolved in a drop of dilute nitric acid, and gently heated; to the warm solution a very minute quantity of powdered potassium chlorate is added, which will produce an intense scarlet color; one or two drops of ammonia will change this to a brownish color, giving a brownish precipitate; the mixture is then evaporated to dryness, when it leaves a dark green residue, dissolved by a drop of water to a green solution, changed to orange-brown by potash, and becoming green again with nitric acid; these last changes of color may be repeated any number of times.

The green coloring-matter is evidently a product of the action of ammonia upon the scarlet body; for if this be bleached by heating or by excess of chlorate before the ammonia is added, the residue on evaporation is light brown, and yields with potash a bright yellow solution which is nearly bleached by nitric acid.

No other of the commonly occurring alkaloids which I have tried could be mistaken for strychnine by the above test, but each of them exhibits some peculiarity when treated in the same way, which would give a clue to its identity. This will be seen in the subjoined table, in which the tests are supposed to be applied to the same portion of the alkaloid, as described:

TABLE OF COLOR-TESTS.

| | $HNO_3$. | | $KClO_3$. | $NH_3$. | Residue. | KHO. | $HNO_3$. |
|---|---|---|---|---|---|---|---|
| | Cold. | Heated. | | | | | |
| Strychnine | | Pink | Scarlet | Brownish precipitate. | Green | Orange. | Green. |
| Brucine | Scarlet<br>Violet | Yellow | Yellow | Bright yellow | Green | Dark brown | Green; brown. |
| Narcotine | | Bright yellow. | Yellow | Dark brown | Dark brown | Dark brown | Reddish yellow. |
| Morphine | Orange-red | Yellow | Yellow | Red-brown | Light brown | Light brown | Light brown. |
| Quinine | | | | Green precipitate | Light brown | Light brown | Light brown. |
| Cinchonine | | | | White precipitate | Light brown | | |
| Caffeine | | | Pale yellow | Bleached | Red; yellow | | |

Some few months ago, I drew attention, in the *Chemical News*, to the use of bromine-water in the detection of alkaloids. I find that a more convenient reagent can be made by mixing a weak solution of potassium chlorate with enough strong hydrochloric acid to turn it bright yellow. This euchlorine solution is added by degrees to the solution of the alkaloid in HCl, which is boiled after each addition.

Strychnine gives a fine red color, bleached by excess and returning when boiled.

Brucine gives a violet color in the cold, which is bleached by excess and restored by boiling.

Narcotine gives a bright yellow color in the cold, which becomes pink on boiling and adding more of the euchlorine solution.

Quinine gives a faint yellowish pink on boiling.

After coloring the solution, weak ammonia is gradually added.

Strychnine gives a yellow color unchanged by boiling.

Brucine gives the same.

Narcotine gives a dingy green, becoming brown on boiling.

Quinine gives a bright green, becoming yellow on boiling.

Morphine gives no reaction; but if, after boiling with the euchlorine solution, the liquid be cooled and allowed to remain in contact with zinc for a minute or two, it will give the characteristic pink reaction with ammonia.—C. L. BLOXAM, *in the Chem. News*, April 7th, 1887.

## New Formulas for Ink.

FROM a series of new formulæ given by Eugen Dieterich in his "Neues Pharmaceutisches Manuale" (Berlin, 1887), we select a few as specimens, remarking at the same time that they have been declared by experts to be among the best ever published:

### I. NUTGALL INKS.

### 1. *Ink-Body A.*

Macerate 200 parts of coarsely powdered Chinese galls for 24 hours with 750 parts of distilled water, strain and express. Upon the residue pour 350 parts of boiling distilled water and express after one hour. Triturate 5 parts of white bole with the mixed strained liquids, raise once to boiling, removing the scum, and then filter through flannel-bags. Wash the latter with water, until the total weight of the filtrate is 1,000 parts.

### 2. *Ink-Body B.*

300 parts of coarsely powdered Chinese galls, and 100 parts of fustic in coarse powder are extracted, as in the preceding case, with 750 parts of cold and 350 parts of boiling distilled water, the united strained liquids clarified with five parts of white bole, and the weight of the final filtrate made up to 1,000 parts.

In place of the extract of galls, tannin may be used; but in this case, as the other constituents of the extract are absent, it is necessary to add more of the salts, so as to increase the body of the ink. Inks made with tannin require more time to get black.

### 3. *Solution of Indigosulphate of Sodium.*

Introduce 150 parts of fuming sulphuric acid into a flask placed in cold water, and gradually add, avoiding increase of temperature, 20 parts of powdered indigo, previously dried at 212° F. Cork the flask and set it aside for 8 days at the ordinary indoor temperature. Meanwhile prepare a filtered solution of 205 parts of carbonate of sodium and 430 parts of distilled water, add this in small quantities, at the end of 8 days, avoiding loss by effervescence, warm gently to remove retained carbonic acid, and finally add water to make the total weight 800 parts.

### 4. *Solution of Crude Acetate of Iron.*

Macerate 10 parts of iron-turnings with 100 parts of wood vinegar as long as any gas is given off; then digest 2 or 3 hours at a temperature not exceeding 122° F., filter, and adjust the filtrate to the spec. grav. 1.115.

### 5. *Alizarin Ink* (also *Copying Ink*).

*a.* Dissolve 50 parts of green sulphate of iron in 750 parts of ink body B (cold), and then add the following ingredients in the order named: distilled water 100, solution of indigosulphate of sodium 150, solution of acetate of iron 25, chloride of ammonium 20, sulphate of sodium 20, sugar 20 parts.

*b.* Mix tannin 50, green sulphate of iron 40, chloride of sodium 25, sugar 25, bisulphate of potassium 7.5, benzoic acid 2, dry indigocarmine 3, and picric acid 0.5 parts, with 1,000 parts of boiling water.

Either of these inks is decanted into a bottle which must be well stoppered. After a fortnight, the clear ink may be drawn off from the sediment.

These inks will retain their copying quality for a period not exceeding twenty-four hours. Fresh writing furnishes brilliant copies.

### 6. *Blue Nutgall Office-Ink* (Ultramarine-Ink).

*a.* Mix 500 parts of ink-body A with a cold mixture prepared from: distilled water 300 parts, green sulphate of iron 30 parts, sugar 20 parts, hydrochloric acid 2 parts. Also dissolve, with a gentle heat, 2 parts of water-soluble aniline blue in 200 parts of distilled water, and add this when cold to the mixture first prepared.

*b.* Dissolve 40 parts of tannin, 30 of sulphate of iron, 35 of sugar and 2 of hydrochloric acid in 900 parts of distilled water, and add to it a solution of 2 parts of water-soluble aniline blue in 100 parts of dist. water prepared by heat and then cooled.

Decant as in the preceding inks.

### 7. *Red Copying Ink.* ("Imperial Ink," "Isatin-Ink, "Crown-Ink," "Coral-Ink," etc.)

Dissolve 50 parts of extract of logwood, in a mortar, in 750 parts of distilled water without the aid of heat, add 2 parts of chromate of potassium and set aside. After twenty-four hours add a solution of 3 p. of oxalic acid, 20 p. of oxalate of ammonium, and 40 p. of sulphate of aluminium, and 200 p. of distilled water, and again set aside for twenty-four hours. Now raise it once to boiling in a bright copper kettle, add 50 p. of wood vinegar, and after cooling, fill into bottles which must be corked. After a fortnight decant.

This ink is red in thin layers, writes red, gives excellent copies in brownish color, and turns blackish-brown upon the paper.

### 8. *Violet Copying Ink.* (Hæmatin-Ink; Victoria-Ink, etc.)

Dissolve 40 parts of extract of logwood, 5 of oxalic acid, and 30 of sulphate of aluminium, without heat, in 800 parts of distilled water and 10 parts of glycerin; let stand twenty-four hours; then add a solution of 5 parts of bichromate of potassium in 100 parts of distilled water, and again set aside for twenty-four hours. Now raise the mixture once to boiling in a bright copper boiler, mix with it, while hot, 50 parts of wood vinegar, and when cold put into bottles. After a fortnight decant it from the sediment.

In thin layers, this ink is reddish-violet; it writes dark-violet, and furnishes bluish-violet copies.

## The Black-Process.

A BLACK-PROCESS, which will compete for favor with the well-known blue-process familiar to engineers and others, is technically known as heliography, is simple, easy, and inexpensive, while the prints are ink-black and are made from drawings or positives and negatives. We owe this process to Mr. Poitevin, but it has been slightly improved.

*Sensitizing solution.*—Dissolve separately.

| | | |
|---|---|---|
| 1. | Gum Arabic | 13 drams. |
| | Water | 17 oz. |
| 2. | Tartaric Acid | 13 drams. |
| | Water | 6 oz., 6 drams. |
| 3. | Persulphate of Iron | 8 drams. |
| | Water | 6 oz., 6 drams. |

The third solution is poured into the second, well agitated and then these two solutions united are added to the first, continually stirring. When the mixture is complete add slowly, still stirring, 100 C.c. (3 fluid oz. 3 drams) of solution of perchloride of iron at 45° Beaumé (spec. gr. 1.450). Filter into a bottle and keep away from the light. It keeps well for a very long time.

[*Note by Ed. Am. Dr.*—We presume that by "Persulphate of Iron" the "Solution of Tersulphate of Iron" is meant. So far as we know Poitevin's original process, modified by him in 1879, it involved the use of tartaric or citric acid with solution of ferric chloride only.]

*Sensitizing the Paper.*—Here especially it becomes necessary to select a paper that is very strong, well sized, and as little porous as possible. By means of a large brush or sponge apply the sensitizing liquid very equally in very thin and smooth coats; then dry as rapidly as possible with heat, without exceeding, however, a temperature of 55° C. (131° F.). The paper should dry in obscurity and be kept away from the light and dampness. Notwithstanding all these precautions, it does not keep well long, and if it is desired to act with some certainty it is better to have a stock to last only a fortnight. Freshly prepared, it is better than a few days afterward. It should be of a yellow color.

*Printing.*—The tracing, made with very black ink, is placed in the printing-frames, the drawing in direct contact with the plate; then place over it the sensitized paper, the prepared side in contact with the back of the tracing. There is no necessity to make use of photometric bands, as the progress of insolation is sufficiently seen on the sensitized paper during the exposure. From yellow that it was, it should become perfectly white in the clear portion; that is to say, upon which there is no drawing of the transfer or positive *cliché* that is to be copied. This is ascertained by raising from time to time the shutter of the frame. The exposure lasts from ten to twelve minutes in the sun; in summer less, in winter more. When the exposure is ended, remove the print from the frame, and it should show a yellow drawing upon a white ground. If in the sensitizing bath a few cubic centimeters of a rather highly concentrated solution of sulphocyanide of potassium have been added, this bath becomes blood red, and colors the paper the same; in this case the print also whitens during exposure, but then the image instead of being yellow is red on a white ground. This substance, however, is, if we may so speak, inert, or without any other action. It is very fugitive, and even disappears in a short time in obscurity; it has no other use, therefore, than to render the drawing or the image more visible after exposure.

*Developing the Prints.*—When the print has been sufficiently exposed, it is taken from the pressure frame and floated for a minute in the following solution, so that the side upon which is the image should alone be in contact with the surface of the liquid, avoiding air-bubbles between the two surfaces. Otherwise defects would be found in the print. To ascertain this, raise in succession the four corners. The developing bath is composed as follows:

| | |
|---|---|
| Gallic Acid (or tannin) | 31-46 grains. |
| Oxalic Acid | 1½ grains. |
| Water | 34 oz. |

In this bath the orange, yellow or red lines are changed into gallate or tannate of iron, and form, consequently, a veritable black writing ink as permanent as it. The print is then plunged into ordinary water, well rinsed, dried, and the print is now finished. The violet black lines become darker in drying, but unfortunately the ground, which appears of a pure white, often acquires, in drying, a light violet tint. For prints with half tones this is of no importance, but for the reproduction of plans, for example, it is very objectionable. By this process we have the satisfaction of obtaining a drawing in black lines similar to the original and in most cases this is sufficient. —*American Stationer.*

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**Papayotin** was used by Dr. Schwimmer (*Wiener Med. Woch.*) in 25 cases of fissure of the tongue, some of which were inveterate, with excellent results. He used 1 to 2 parts of papayotin in 10 parts each of glycerin and distilled water, applying the mixture from 2 to 6 times daily, with a camel's hair brush, after drying the surface. Pain was stopped, and epithelium seemed to be renewed under its influence.

## Manufacture of Gold-Leaf.

THE extreme malleability of gold has made it a prominent metal in the useful as well as the fine arts. It has been calculated that from two to four million dollars' worth of this precious metal is annually used on ornaments, in gilding, in lettering, edging of books, in sign, ornamental painting, and in dentistry. Of course, the greater proportion of this is for the first-named purpose, although there appears to be a great amount used in the other industries. A comparatively small amount is necessary to cover a great deal of space. A cubic inch can be hammered so as to cover a space thirty-five feet wide and one hundred feet long, and twenty of our twenty-dollar gold pieces can be drawn into a wire that would reach around the globe.

The gold-leaf beater's art is one of the most surprising when the result is considered. The minute films are so thin as hardly to retard the light, and yet possess all the brilliancy of color of the solid block of gold of about 22 carats. It is first cast into bars 8 inches long, 1 inch wide and ½ inch thick, the weight being about 35 ounces. It is then rolled out until it is about as thick as your finger nail; the "ribbon," as it is called, is then weighed into packages or "beatings" of 2½ ounces each. These beatings are what the men first start to work on. A man will cut one of these beatings (of 2½ ounces) into 180 pieces, making the pieces about an inch square. He then puts them into a "kutch," which is made of prepared paper, the size being 2½ inches square; he lays these 180 pieces of gold between these papers, first a paper, then a piece of gold. He will then beat on the "kutch" with an iron hammer weighing about eighteen pounds, until the gold is the size of the "kutch;" these pieces are then cut into quarters, and then filled into a "shoder," which is made of gold-beater's skin, the size being four inches square and holding all the pieces, numbering 740. The gold-beater's skin is made from a preparation of a large portion of the large intestines of an ox, and the prepared paper is, or may be, parchment made from calfskin, rendered clear and white by a peculiar operation that gives it the appearance of writing-paper, for which purpose it is used to some extent. The pieces are then beaten out in the "shoder" with a hammer weighing about thirteen pounds, making them all four inches square.

These pieces, or "shoder leaves" (as they are now called) are cut into quarters, making them two inches square, and in all 2,880 pieces or quarters of "shoder leaves." These are then filled into three moulds; each mould is made of the same material as the "shoder;" the moulds are five inches square and hold 900 pieces or quarters of "shoder" each.

The moulds are then beaten out separately with a hammer weighing about eight pounds, until the gold inside is very nearly square with the edge of the moulds. They are then sent to the girls for booking. Each girl will then take a mould full of gold, taking each leaf out separately and trimming the edges of the leaf off, making them 3½ inches square, and as the leaves are cut they are put into a paper book, holding twenty-five leaves. The gold is then ready for sale. It is sold by the single book or by the pack, twenty books making a pack.—*Amer. Stationer.*

## Avoidance of Injury in Railroad Accidents.

IT is very difficult to instruct a person what he had better to do in case of a railroad accident. It is, however, highly important that some proper suggestions be given. It might be well to have an emergency lecture prepared in the most careful manner, and brought to the notice of the travelling public, so that the injuries received shall be reduced to a minimum. One cannot guard against missiles in the shape of flying beams, stoves, and seats, but there should be certain simples rules impressed upon the minds of all, which they will act upon almost instinctively. It appears reasonable that if one can keep his place by clinging to his seat, he has the best chance, if nothing strikes him. I know of a case where a passenger was riding in the front part of a smoker. He was seated with his back square against the seat. He received no injury whatever from a rear collision that shook the passengers up and sprained one's back so that the patient laid abed two weeks. It is evident a square seat, with the feet upon the rail, is the best position to be in for an ordinary accident. One of my patients clung to her seat, and although her car was carried into the street, she escaped with very little jarring and shock. The train hands usually have a better chance to see what is coming, and may jump, but this is not considered good policy since the use of the Miller Patent platform and Westinghouse air-brake. An old rule among railroad men runs: "Don't jump till you can see the size of the gravel."—E. P. GERRY, M.D., in the *Boston Med. and Surg. Jour.* of May 19th, 1887.

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FOR corns and bunions an efficient remedy is equal parts of castor oil and tinct. iodine. This is to be painted on the part two or three times a day.—*North Carolina Med. Jour.*

### Some New Sugar Reactions.

DR. HANS MOLISCH, of Vienna, recently announced some new reactions for sugar (see this JOURNAL, 1886, 168), in one of which α-naphthol is used, and in the other thymol. Regarding the latter, David Lindo writes in the *Chem. News* (May 20th, 1887) as follows:

"I have made some experiments with the thymol test but not with α-naphthol, for want of the reagent. Fifteen Gms. of thymol were dissolved in alcohol, the volume made up to 100 C.c., and two drops of this solution used in each experiment. The quantity of liquid taken for testing was always half a C.c., and of strong sulphuric acid 1 C.c. The acid must be quite *free from oxides of nitrogen*, or a mistake may easily be made, as will be explained further on.

Dilute starch paste (one per cent starch) gave a very fine reaction with the test, and a 1 per cent solution of gum arabic (fresh) a very good one. The color was *intense red* with the gum at first, but became brownish after a little time from charring. On diluting with 10 C.c. water, and stirring, a fine *purple red* precipitate formed in the starch tube, and a dark purple one in the gum. This precipitate is by far the most characteristic feature of the reaction, and will be more fully referred to presently.

One part of cane sugar in 200,000 parts of distilled water gave a distinct reaction, but none could be obtained with 1 part of sugar in 500,000 parts of water.

All these experiments have been several times repeated; the results were found to be somewhat irregular. Thus with a dilution of 200,000 a tint was sometimes obtained that could not be distinguished from the color produced with a dilution of 100,000. This is owing chiefly to variations in the rise of temperature that occurs on adding the acid, and cannot be guarded against, whatever precautions may be taken.

All samples of normal human urine examined gave the reaction (or one very similar to it) when undiluted, and most of them when diluted with 50 volumes of water. In the undiluted state the reaction was sometimes greatly obscured by charring, but on diluting the product with 20 C.c. of water the purple tinge was always observable, and a purple precipitate fell after some time. When the urines were subjected to the action of the sulphuric acid alone, and the products diluted to the same extent as those in which thymol had been used, the difference was very striking, the precipitates being devoid of any purple tinge.

Yet all this, I think, it will be pretty generally considered, falls far short of proving the presence of sugar in normal urine, a complex fluid, which must be acted on by such a potent agent as concentrated sulphuric acid to bring about the reaction.

I have cautioned against the use of sulphuric acid containing oxides of nitrogen in trying these experiments, the reasons being that these bodies as is very well known, give color reactions with thymol in the presence of strong sulphuric acid, and some of these reactions cannot be distinguished by the eye from the reaction produced by sugar.

If a very dilute solution of nitrite of potassium—say 0.3 Gm. in 100 C.c. water—is employed in place of a sugar solution (say ¼ per cent), and used in the same way, the color reaction obtained with the nitrite will be undistinguishable from that produced by the sugar. On diluting the nitrite product with 10 C.c. water, a purple precipitate might possibly form, though it is not often obtained under the conditions of the experiment. This precipitate is thymol dye, and closely resembles in appearance some of the precipitates obtained in sugar testing. They are easily distinguished by collecting on small filters and, after washing, adding a small quantity of alcohol. The *sugar* precipitate *dissolves*, and the *color* is instantly *destroyed*. The *nitrite* precipitate *dissolves* in the alcohol, forming a beautiful *purple* solution.

Thymol is not the only stearoptene that yields, with sugar and concentrated sulphuric acid, an intense purple-red product. Kingzett states that common laurel camphor, dissolved in sulphuric acid, gives with sugar a most beautiful color reaction—a statement I can fully confirm, though I have not been able to render this camphor available for showing the presence of sugar in highly dilute solutions. Menthol I find gives a splendid reaction, an alcoholic solution being used in the same way as thymol. The solution, however, must be much weaker, 1 Gm. of menthol dissolved in 100 C.c. alcohol being strong enough for the purpose.

Half a C.c. of sugar solution, 1 part in 40,000 parts of water, gives a very distinct reaction with this reagent. The menthol used was in crystals resembling in appearance magnesium sulphate.

On adding water, however, to these colored products from common camphor and menthol, the colors are at once destroyed; there is no characteristic precipitate formed as with thymol, which on this account is decidedly to be preferred as a reagent in testing for sugar.

The presence of sugar when mixed with glycerin is easily shown by these tests; the glycerin should be mixed with about ten times its volume of water before applying them.

### Absorption through the Skin.

THE method followed by Ritter and Pfeiffer in their experiments was to rub well into the extensor surface of a healthy limb half an ounce of an ointment containing the substance under investigation, then to cover the spot with a protective bandage to prevent any possible absorption by the lungs, and after twenty-four hours to collect some urine and examine it for the presence of the drug. It was found that potassium iodide from a ten-per-cent ointment passed into the urine in only one out of five cases, and this was after the ointment had been used for four days, when the skin had become irritated and its continuity practically destroyed by the prolonged action of the fatty acids derived from the decomposition of the lard. Sodium salicylate applied in the same way was never found, even in traces, in the urine; but salicylic acid invariably gave its characteristic color test with ferric chloride within a few hours after its application.

This behavior of salicylic acid is attributed to the property possessed by it of softening the epidermis and rendering it permeable, and the extent to which this takes place is shown by the fact that if the application of salicylic acid ointment be followed by one of potassium iodide ointment, the potassium iodide quickly passes into the organism and becomes detectable in the urine. When lard was replaced by lanolin, it was not found that the ointment manifested any superior penetrative power. Some other experiments made to test the capability of the skin to absorb substances sprayed on to it in watery solution gave, when precautions were taken to exclude the spray from the respiratory passages, only negative results.

### Fire Caused by a Show-Bottle.

MR. G. W. FITTON writes to the *Chemist and Druggist* that he has narrowly escaped what might have been a serious affair. "Not having the blind down in front of the window as usual, and the sun being very strong, the rays, after passing through a large carboy filled with the usual solution of bichromate of potash, were thrown on to the woodwork of the window inclosure, soon burning a piece nearly ¼ inch thick and 4 inches long; more would have followed had I not discovered it in time. Should like to know," he adds, "if you have heard of a case like this occurring before?"

There have been a number of similar incidents recorded, and it stands druggists in hand to be careful about displaying globular-shaped jars in their windows where the sun's rays can be refracted by them.

### Decolorizing Reddened Carbolic Acid.

S. DEMANT communicates to the *Schweiz. Wochenschr. f. d. Pharm.*, No. 14, the following method of decolorizing carbolic acid which has acquired a red color, for the benefit of those who cannot accept the offer made by some manufacturers to exchange the reddened acid for one that is colorless.

Melt the reddened acid on the water-bath, to every 89 parts of it add 11 parts of alcohol, and expose the resulting red liquid to a freezing temperature. When most of it is solidified, pour off the supernatant liquid and allow to drain well. In this way perfectly white crystals are obtained which, when melted, yield a colorless liquid or one that has, at most, a faint reddish cast.

### Chemical Landscapes.

ONE of the prettiest and most interesting chemical experiments imaginable is that resulting from immersion of some lump ammon. hydrochlor. into a 25 per cent solution of nitrate of lead strongly acidified with nitric acid. Suitable proportions are 2 oz. nitrate of lead, 6 oz. distilled water, ⅛ oz. nitric acid, from 2 to 3 drachms of ammon. hydrochlor. The chemical action may be explained as follows: The nitric acid decomposes the hydrochlorate, forming ammonia nitrate and setting free hydrochloric acid gas, which the moment the outer circumference of each minute bubble comes in contact with the lead solution forms insoluble lead chloride. This is piled up in the most fantastic shapes, hollow stems reaching to the surface of the solution. After a few hours splendid crystals of ammonia nitrate begin to form. The effect is indescribably beautiful. With a little imagination, perfect winter landscapes, ruins, trees, etc., may be made out. The vessel containing the solution should be placed on a mantel-shelf or some place where it is not likely to get shaken. This is a *sine qua non*. If undisturbed it will last for days. The cost is almost *nil*.

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**Naphthalin** is acquiring a good reputation as an efficient remedy in the treatment of diarrhœa when it is due to disturbance in the small intestine. It is strongly probable that the *cholera infantum* of summer is usually the result of poisoning by absorption of the putrid contents of the intestine, and in such cases naphthalin has already been of great service. Adults can take 5 to 15 grain doses with glycerin and charcoal.

**Solanine** (derived from *Solanum nigrum* and from the fruit of the potato) is being employed in place of morphine to relieve pain and as a narcotic. Its use in large doses is said to be unattended with nausea, and as much as 50 centigrammes have been given without unpleasant effect, 5 to 30 centigrammes being the usual dose. Solanine and its hydrochlorate is made by Mialhi, of Paris, who sells it from 6 to 10 francs per gramme.—*Chem. and Drugg.*

**Platinum.**—The most important sources of platinum are the hydraulic mines at Nizhne-Taglsk and Forgo-Blagodat, in the Ural mountains. About 80 per cent of the world's production comes from this source. Next in importance are the gold washings of the Pinto, in the United States of Colombia. About 15 per cent of the entire product comes from this source. It is also found in Brazil, Borneo, Hayti, Peru, India, Australia, and in the sands of the Chaudiere River, in Quebec. It has recently been found in a quartz vein in New Zealand. Platinum has only been found associated with free gold in the placer deposits of California in any quantity, viz., 100 and 200 oz. per annum. It contains about 85 per cent of the metal, and is brought to London to be refined.

**Labelling Glassware.**—The following formula has been recommended for sticking labels to glass: Select three or four pieces of gum tragacanth, about the size of a coffee berry, and place in a two-ounce wide-mouthed bottle; then pour over it acetic acid so as to barely cover the gum, and place the bottle aside until the next day, by which time the gum will have absorbed the fluid and become very much swollen. Now add water, stir well, and in a day or two a semi-transparent jelly will be the result. A drop or two of 95-per-cent solution of carbolic acid should then be added, and it will keep indefinitely.

**Emulsifying Chloroform and Ether with Gum Arabic.**—A modification of Prof. Parrish's method, suggested by T. S. Wiegand, in the *Amer. Jour. of Pharm.*, is as follows: The gum is placed in a dry bottle, the chloroform added and shaken thoroughly. The water is next added and the shaking continued until the process is completed. This mixture, on standing, separates into two layers; a thick, white layer containing the gum and chloroform and one containing most of the water. The same process is employed for an ether emulsion, but the product, at first transparent, separates, like the foregoing, with the difference that the ether layer is uppermost. Upon repeating the shaking, the mixture is easily effected.

Mr. Wiegand suggests that when a very volatile liquid is to be dispensed in a large number of drops, a few drops can be measured in a minim-glass from which the whole amount can be estimated and rapidly measured without the loss resulting from evaporation during counting.

**Acid Hydrochlorate of Quinine** is recommended for hypodermic use, 2 grammes being soluble in 3 grammes of distilled water. It forms a light greenish-yellow solution; reddens litmus paper slightly; is stable; produces no irritation of the skin and admits of a comparatively large dose being used. As prepared by Erba, of Milan, the salt is an amorphous powder of yellowish-white color.—*Chem. and Drugg.*

**Cod-Liver Oil** is said to be adulterated with paraffin oil, the simple test for which is saponification, a property not residing in paraffin.—*Amer. Jour. Pharm.*

**Sandal-Wood Oil** is recommended by Dr. E. Philbert as a remedy in renal colic, who used it himself in several attacks. Four of the usual capsules were taken for a dose, and a warm bath was used at the same time. He believes that the oil gave him great relief from one of the most painful of maladies.—*Practitioner.*

**Cannabis Indica**, in the form of tincture, is recommended by Staff Surgeon J. Rumia, of Cawnpore, India, as a remedy in dysentery. He administered it in the following combinations:

℞ Tincture of Cannabis indica, ♏ xv.; Subcarbonate of Bismuth, gr. v.; Mucilage of Acacia, ʒ ss.; Tincture of Ginger, ♏ xv.; Compound tincture of Cardamom, ♏ xx.; Spirit of Chloroform, ♏ xx.; Cinnamon Water, ad ℥ i. To be taken, thrice daily. It is pleasant to take, but liable to cause vomiting unless taken after eating. It acts best in subacute and chronic cases.—*Practitioner.*

**Pilocarpine as a Galactagogue.**—Dr. Chéron, who has studied the action of pilocarpine upon the mammary glands, believes that he has found in it a specific. The treatment has been practised by him in nine cases with satisfactory results in all but one. Five centigrammes of the nitrate of pilocarpine were hypodermically injected as soon as the milk became scanty, whether this took place suddenly or by degrees. The injection was repeated every day. Under its influence the skin of the face and, afterwards, that of the body became hot for a few moments, but there was seldom any moisture. It is essential to success not to produce diaphoresis. If the scantiness of secretion has existed for some time, ten or twelve injections are required; on the other hand, if it has come on suddenly, two or three will suffice. The treatment had no ill effect either on the nurse or nurseling.—*Therapeutic Gazette.*

## QUERIES & ANSWERS.

*Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer, for the information of the editor, but not for publication.*

No. 1,957.—**Congo-Red and Congo Paper** (E. F. S.).

We have already noticed Congo-red and its application as a reagent for acids and alkalies on page 13 of our last volume. The first sample of Congo-red ever brought to this country reached us during 1885, and we had made quite a series of experiments with it, but found it not sufficiently delicate to answer all purposes. Now, however, the coloring matter is prepared in a much purer state, and is certainly in many respects much superior to litmus. Congo-red is a coal-tar color, the exact chemical composition of which is, we believe, not quite determined. Of course, it is a patented color, being made by the Berlin Aniline Works. It dies cotton and other vegetable fibres (paper) without mordants, and is soluble in alcohol and also in water. Paper tinted with a *weak* solution of it has a pinkish-red color which is changed to *sky-blue* by *acids*, and again turned red by alkalies. It has the great advantage of not losing its color by the latter being washed out when thrown in a liquid.

The beauty of the change of color appears most prominently in alcoholic solution, but paper may be impregnated either with aqueous or alcoholic solution.

As Congo-red changes color in opposite directions from litmus, it may sometimes be used in conjunction with the latter, that is, in comparative experiments, where the degree of acidity or alkalinity is faint, to give a positive decision.

Congo-red may be obtained through dealers in chemicals, or through wholesale drug houses.

No. 1,958.—**Rendering Rubber Tubing Clean and Preventing its Getting Brittle** (Laboratory).

You are probably not aware that even the so-called "pure" india-rubber tubing is vulcanized. Perfectly pure rubber is not suitable for such purposes as tubing, since it is apt to undergo alterations in elasticity, cohesiveness, and other properties much more rapidly than the vulcanised. The best qualities of tubing, however, contain only a small proportion of sulphur, and the darker they are (if not colored artificially), and the softer and elastic, the better is their quality. Ruinous competition between the different firms engaged in the manufacture of rubber, however, has resulted in the almost complete disappearance of really good rubber tubing from the market. It is usually obtainable only through certain houses who have large quantities of a special tubing made for themselves exclusively. The ordinary tubing is "filled" with more or less useless material, such as oxide of zinc, sulphate of barium, sulphate of calcium, etc., up to 70 per cent and more in the worst cases. No wonder, that much of the ordinary tubing soon kinks, or loses its elasticity and becomes brittle.

The white superficial coating (sulphur) on vulcanized rubber tubing, or on rubber corks—we have reference mainly to the good qualities—may be removed by boiling the tubing or corks in water containing about 10% of caustic soda and to which about 10% of sulphite of sodium is gradually added. The tubing laid into the bottom of the vessel—upon which a layer of coarse gravel ought to be first put—in a horizontal position, in form of a regular coil, ought to be raised out of the boiling liquid by one end frequently, a glass-funnel inserted in this, and by means of a suitable ladle or dipper some of the boiling liquid poured into the funnel, so that the liquid contained within the tube will be frequently changed.

When the tubing and the liquid has assumed a dark color, and the former appears to be quite clean upon the outside, it is taken out, and thoroughly rinsed, inside and outside, first with boiling, then with cold water. Finally, it is laid in water, either saturated with salicylic, or benzoic or boric acids, or naphthol, to prevent the formation of fungus, and kept in the water until wanted. It will then be always flexible, soft and as if just from the factory, with the additional advantage of being thoroughly clean.

No. 1,959.—**Isonitril Reaction** ("Co.").

Isonitril is a generic term for a class of bodies consisting of an alcohol radical, such as methyl $CH_3$, ethyl $C_2H_5$ etc., in combination with cyanogen, the combination being a peculiar one in this, that the alcohol radical is directly combined with the nitrogen, but not with the carbon, of the cyanogen. It is produced in a variety of ways, for instance by the action of an alcoholic solution of potassa upon a mixture of chloroform either with a primary alcohol base, or with aniline or another primary monamine. In each separate case, a particular kind of isonitril is formed, depending on the nature of the alcohol. For instance, if the alcohol in which the potassa is dissolved is the ordinary ethylic alcohol, then *ethylisonitril* (ethylisocyanide), also called isopropionitril, or ethylcarbylamine, $C_6H_5.NC$, is formed. If methylic alcohol was used, *methylisonitril* (methylisocyanide) is formed. All these isonitrils have a very *disagreeable* persistent *odor*, recognizable in a very small quantity.

The formation of these bad-smelling compounds has been utilized in analysis as an identity reaction for any of the bodies which are concerned in its production. It has been especially utilized as an identity-test for chloroform. Bromoform and iodoform yield the same result, but there are then other means available to distinguish between them.

Recently Dr. Chas. O. Curtmann, of St. Louis, has applied the reaction as a test for aniline derivatives when used as coloring matters in wines. He found when 4 C.c. of the suspected red wine or other colored liquid are mixed in a test-tube with 2 drops of chloroform and 4 C.c. of an alcoholic solution of potassa containing about 10 per cent, and the mixture, after being shaken, is gently warmed a few minutes, and then quickly heated to boiling, the characteristic odor of isonitril is developed if an aniline coloring matter was present. In certain cases, such as with-acid fuchsine (rosaniline-sulphonic acid), a doubtful result is first obtained, but it is only necessary to add about 4 C.c. of concentrated sulphuric acid to produce the reaction. In doubtful cases, it is best to extract some of the coloring matter by shaking out with solvents, or, in the case of colored fabrics, by dissolving some of the coloring matter by diluted alcohol or some other solvent, and trying the reaction upon the extract thus obtained.

No. 1,960.—**Delicacy of the Sense of Smell** (B. H.).

On page 134 of our last volume we published the results obtained by Emil Fischer and Franz Penzoldt regarding this subject. These authors had ascertained that of all substances so far tested *mercaptan* (any alcohol in which oxygen is replaced by sulphur is called a mercaptan) and *chlorophenol* permitted the largest dilutions before becoming indistinguishable. Recently, the authors have republished their results, with a few additions, in *Liebig's Annalen*, 239, 131. They state there that as small a quantity as one twenty-three-thousand-millionth part of a milligramme of mercaptan, or one two-hundred-and-thirty millionth of a milligramme of chlorophenol in 1 cubic centimeter of air is still perceptible to a normal sense of smell, though it requires, according to their experiments, about 5 cubic centimeters of the impregnated air to come in contact with the olfactory region of the nose to produce a decided impression of any smell. The above quantities, expressed in volumes, would be as follows:

1 vol. of mercaptan is still recognizable in 50,000,000-000 vols. of air; and 1 vol. of chlorophenol in 1,000,000,000 vol. of air.

In addition to the proposition heretofore already made (see our July number of 1886, page 134), to utilize this immense diffusibility for the practical testing of the tightness of sewers, plumbing work, etc., the authors suggest a still futher application, though this is merely a natural sequence of the preceding proposition. They recommend its use for testing air-currents, the diffusion of gases, arrangements made for ventilation, or in geological or mining explorations involving fissures, lodes, or water-currents in mountainous districts.

No. 1,961.—**Peter's Acetometer** (Ultra).

This is an apparatus patented a number of years ago, though in our judgment so closely resembling other forms of apparatus previously recommended for the same purpose, and not patented, that we fail to see where the originality comes in. It consists of a graduated tube, which is to be filled to the mark 0 with the vinegar to be tested. From a bottle accompanying the tube, and containing a solution of soda tinted with phenolphthalein, enough of this is to be poured into the tube (in portions and shaking after each addition) until the red tint of the phenolphthalein remains permanent. The divisions on the tube over the mark 0 are then read off, and the strength of the vinegar is then known in terms of "grains," for instance, "40 grain vinegar," "50 grain vinegar," etc. These terms, though universally used in trade, are very indefinite, as they refer to *carbonate of potassium*, which is of very indefinite composition. Unless a chemically pure salt, prepared from the bicarbonate, is employed, no certain reliance can be placed upon the test, which is performed by ascertaining the number of *grains* of so-called "pure" carbonate of potassium which are required to saturate one fluidounce of the vinegar. Yet most persons who use the test in this manner, simply buy the commercial carbonate of potassium (sal tartar), containing up to about 17 per cent of water and some impurities besides. It would be much preferable—if a plain, coarse test is to be used—to employ precipitated chalk, in which case the end reaction would be recognized, not only by the cessation of effervescence when the acid is neutralized, but also by the fact that the liquid will cease to dissolve the slightest excess of the lime salt. In this case, of course, a smaller quantity of the latter would be required to neutralize the vinegar. For instance, supposing 1 fl. oz. of a certain vinegar had required 30 grains of commercial (hydrated) carbonate of potassium, the same vinegar would have required only a trifle over 18 grains of precipitated chalk. We have no hope of any change in the commercial mode of estimating the strength of vinegar being made in the near future. But it certainly appears necessary that some authoritative or legal definition of the "grain-system" should be made, and that the kind, and the degree of purity of the potassium (or preferable, some other salt) be exactly established.

Recently, an improved form of Otto's well-known acetometer has been recommended by Dr. W. Fresenius. This consists of a tube, like that described above, the graduation of which begins at 0 at a point sufficiently distant from the bottom to permit the ungraduated space to hold exactly 5 C.c. of the vinegar. A drop of phenolphthalein solution is then added, and successive portions of a volumetric solution of soda (of which one liter corresponds to 50 Gm. of acetic acid) is added, until finally, upon shaking, the liquid is tinted red. The graduation above the 0 mark reaches to 12 C.c., each being divided into fifths. Using a soda solution of the before-mentioned strength, the number of cubic centimeters used to neutralize the vinegar directly express the *grammes* of acetic acid of the same strength as that with which the soda solution has been standardized. The most suitable for this purpose, of course, is the 100% or glacial acetic acid.

No. 1,962.—**Enameled Letters** (C. F. D., New York).

"Please inform in your journal of what the white enameled letters on show windows is composed. Can it be cast in moulds? How is the polish or glaze produced?

The letter is formed in copper, and the surface which is to become the face of the letter is covered with powdered enamel. It is then subjected to a temperature sufficient to melt the enamel and cause it to adhere to the copper. The glazed surface depends mainly upon the degree of heat, and requires a great deal of experience on the part of the operator. Enamel is of the nature of glass. It cannot be cast in moulds.

**Uses of Oil of Erigeron.**—Prof. Roberts Bartholow, of Philadelphia, speaks favorably, in the *Physician and Surgeon*, of the use of oil of erigeron, in the following conditions: Menorrhagia, metrorrhagia, and hemorrhages in general, albuminuria due to chronic nephritis, cystitis and prostatic enlargement, and catarrh of the air passages. Its action is best shown when it is taken in small doses and frequently repeated, and he usually gives five drops on a lump of sugar, every 3 or 4 hours.

**Rubber may be fastened to Iron** by means of a paint prepared by macerating powdered shellac in about twice its weight of concentrated ammonia. It should be allowed to stand three or four weeks before being used.

**Absorption of Oil by the Skin.**—I. C. Hoffman writes to the *Scientific American:* "In your issue of March 26th is advice to one who wishes to gain in fat and strength. Let him take a warm bath, thoroughly "opening" his skin, then rub dry with warm, rough towels in a heated room, and when actually dry, let him rub in, thoroughly, any pure oil—cod-liver preferably, but olive will do—all over his body. He will find that thus ten times more will become assimilated than his weak stomach can possibly digest. Give the stomach rest and a chance to recuperate, while letting the skin do its work."

**Peptonizing Ferment in Figs.**—Dr. A. Hansen has been investigating the digestive properties of the common fig, and finds that the statements made by others concerning a peptonizing ferment in this article of food are correct. It acts also on starch and sugar. A syrup of dried figs is active. It is suggested that a syrup be made of this fruit to administer to children along with starchy foods so much in vogue.—*Phar. Journ.*

**Pickle for Pathological Preparations.**—Professor Grawitz, of the Berlin Pathological Museum, has since April, 1885, been making use of a pickling liquid for the preservation of pathological specimens, and after two years' test speaks enthusiastically of its usefulness. The liquid is prepared as follows: 150 Gms. of common salt, 40 Gms. of sugar, and 20 Gms. of saltpetre are dissolved in 1 liter of water. This solution is acidulated by the addition of 3 per cent of boric or tartaric acid. The acid is necessary on account of the decomposition of the hæmoglobin in the tissues. When the preparation is placed in the liquid, water is added until the object sinks in it. The pickle is ready in from four to eight weeks, when the objects are taken out and placed in fresh clear pickle. The quantity of water required to be added is from one-third to one-half. The vessels should be filled brimful, so that when the cover is placed on, no layer of air should remain under the cover; the cover should touch the liquid.—*Med. and Surg. Reporter.*

**Chromic Acid** is now prepared by Merck, of Darmstadt, absolutely free from sulphuric acid and hence very slowly deliquescent. Owing to its diminished liability to spread upon surrounding tissues, it is especially adapted for use as an escharotic in the nose and throat.

## FORMULAS.

**Incompatible Prescriptions.**—The following familiar formulæ, whose combination results in an incompatibility of the ingredients, are taken from the *Therapeutic Gazette* of March 15th, 1887:

A common and dangerous action is that resulting from the mixture of alkaloids with alkalies or alkaline salts, of which the following is an example:

| | |
|---|---|
| ℞ Strychninæ Sulphat | gr. ss. |
| Elixir. Brom. Chloral | ℥ viij. |

M. Sig. A teaspoonful morning and evening.

The result of this mixture is a colorless solution, from which is deposited in a few hours a crystalline precipitate which is the greater portion of the strychnine ordered. Although the elixir is not officinal, it is frequently prescribed, and its potassium bromide [if alkaline.—Ed. Am. Dr.] will deposit the strychnine as an insoluble bromide. The last dose taken, unless great care to shake the mixture well was observed, would result disastrously.

The following prescription may also result badly:

| | |
|---|---|
| ℞ Morphin. Sulphat | gr. ij. |
| Liq. Ammon. Acet | fl. ʒ ss. |
| Aq. destillat., | |
| Syr. Simpl | āā fl. ℥ ij. |

M. Sig. Teaspoonful doses as ordered.

When the diluted acetic acid has been neutralized, and an excess, although not great, of ammonium carbonate is present, the precipitation of the alkaloid will result as in the first instance.

The following may also prove incompatible:

| | |
|---|---|
| ℞ Potass. Iodidi | ʒ i. |
| Spts. Æther. Nitrosi, | |
| Aquæ. | āā ℥ i. |

When the spiritus ætheris nitrosi is not free from nitric and acetic acids (a result which is produced by the action of the air), iodine will be set free, and a colored solution take the place of a colorless one. The chemistry of the decomposition of the spiritus ætheris nitrosi is as follows:

$$2(C_2H_5NO_2) + 3O_2 = 2(HC_2H_3O_2) + 2HNO_2.$$

A familiar example of decomposition occurring in the organism when chemical substances are given is found in the simultaneous use of calomel and potassium iodide, as follows:

| | |
|---|---|
| ℞ Hydrarg. Chlor. Mit | gr. iv. |
| Sacchar. Lactis | gr. x. |

M. F. pulv. No. 10. Sig. A powder three times daily.

Also,

| | |
|---|---|
| ℞ Potass. Iodid | ℥ i. |
| Aq. destillat | ℥ iv. |

M. Sig. Teaspoonful every three hours.

A reaction between the calomel and potassium iodide occurs in the stomach [biniodide of mercury, metallic mercury, and chloride of potassium being formed] and bad results, through the irritating mercurial formed, may occur.

An explosion or unfortunate formation of gas may result from this prescription:

| | |
|---|---|
| ℞ Ammon. Carbonat | ℈ ij. |
| Syrup. Scillæ | fl. ℥ i. |
| Syrup. Senegæ | ℥ i. |

M.

The acetic acid in the syrup of squill has been overlooked in this combination; its union with the ammonium salt would result unfortunately through the liberation of carbonic acid gas.

**Glycerin Lemonade.**—The "*Revue générale de clinique et de thérapeutique*" attributes the following formula to Semmola:

| | |
|---|---|
| Pure glycerin | 150 parts. |
| Citric acid | 1 part. |
| Water | 300 parts. |

About one ounce of this solution is to be taken, in a glass of water, every hour. Thus administered, even in large quantities, glycerin does not cause gastro-intestinal disturbance.

**An Injection for Gonorrhœa.**—The "*Union Médicale*" attributes the following formula to Barré:

| | | |
|---|---|---|
| Tannic acid | 3 | parts. |
| Solution of subacetate of lead | 6 | " |
| Tincture of catechu | 12 | " |
| Sydenham's Laudanum* | 3 | " |
| Rose Water | 100 | " |
| Distilled Water | 300 | " |

To be used night and morning, each injection being retained for three minutes.—*N. Y. Med. Jour.*

**Artificial Hunyadi Janos Water.**—℞ Magnesii sulphatis, sodii sulphatis, āā ℥ ss.; potassii sulphatis, gr. ij.; sodii bicarbonatis, gr. viij.; sodii chloridi, gr. xx.; aquæ ad ℥ viij. M. Sig. Wineglass before breakfast.

**Remedy for Lumbago.**—Professor Burggraeve, Germany, recommends the following: ℞ Collodion, tincture of iodine, water ammonia, equal parts. M. Sig. Apply widely over the parts with a camel's-hair brush. (Said to relieve instantaneously.)

**Formula for Rheumatism** (St. Luke's Hospital).—℞ Potassii iodidi, ʒ iij.; vini colchici seminis, ℥ ij.; tincturæ opii camphoratæ, ʒ ij.; tincturæ stramonii ʒ vi.; tincturæ cimicifugæ, ℥ iij. M. Sig. Teaspoonful three or four times a day.

**Peptone Suppositories.**—Sauter prepares these suppositories with cacao butter, each containing twenty-five grains of peptone; they are mixed, and kept cold to prevent the fat from becoming rancid. In cases where patients cannot be nourished in the normal manner, they serve an excellent purpose, fifteen grains of dried peptone equalling two and one-half drachms of meat in nutritive value. Children may be given one suppository four times daily; grown persons, two or three times daily. The suppository should be lubricated with olive-oil, and the rectum previously cleansed by an enema.—*Therapeutic Gazette.*

**An Asthma Cure.**—The *Medical Record* gives the following as the composition of the patent asthma cure, which Dr. Holmes in his "One Hundred Days in Europe," says gave him more relief than any other of the many remedies that were showered upon him.

| | |
|---|---|
| ℞ Pulv. lobeliæ, | |
| Pulv. stramonii fol., | |
| Pulv. potass. nitrat., | |
| Powd. black tea | āā ℥ ij. |

M. and sift.

Some of this is burned and the smoke inhaled.

**Formulas for the Hypodermatic Use of New Remedies.**—The following are from *A Manual of Hypodermatic Injections*, by Bourneville and Bricon:

| | |
|---|---|
| 1. Acid. chrysophanic. | gr. $\frac{1}{16}$ to $\frac{1}{8}$ |
| Aquæ destillat | ♏ 15 |

Employed successfully in eczema, lichen, prurigo, psoriasis, and urticaria.

| | |
|---|---|
| 2. Acid. osmici | gr. 1½ |
| Aquæ destillat | ʒ 2½ |

For interstitial injections in the treatment of tumors; in the treatment of obstinate neuralgia (Billroth, Neuber), from 8 to 15 minims of the solution may be injected in the vicinity of the affected nerve.

| | |
|---|---|
| 3. Agaricini | gr. ¾ |
| Alcohol. absolut | ♏ 70 |
| Glycerini | ♏ 85 |

The contents of an ordinary hypodermatic syringe, 20 to 30 minims, may be given for the night sweats of phthisis.

| | |
|---|---|
| 4. Antipyrin. hydrochlorat. | gr. 15 |
| Aquæ destillat | ♏ 15 |

Solution should be aided by heat. Huchard has used the drug with benefit as an antipyretic.

| | |
|---|---|
| 5. Cotoini puri | gr. 15 |
| Æther. acetic | ʒ 1 |

The contents of a hypodermatic syringe may be injected and repeated in fifteen or twenty minutes, or every hour, for obstinate diarrhœa, intestinal ulceration, in cirrhosis, and alcoholism. May be used in cholera, night sweats.

| | |
|---|---|
| 6. Kairin. hydrochlorat | gr. 1½ |
| Aquæ destillat | ♏ 15 |

A powerful antithermic; antipyrine is preferable.

| | |
|---|---|
| 7. Spir. Glonoini (alcohol. sol. of nitro-glycerin, 1 to 100. | gtt. 30 |
| Aquæ destillat. (lauro-cerasi) | ℥ 2 6 ♏, to ℥ 2½ |

This should be injected into the muscles of the back or nates. To be given in angina or cerebral anæmia.

| | |
|---|---|
| 8. Paraldehydi, | |
| Aquæ lauro-cerasi | āā ♏ 75 |
| Aquæ destillat. | ℥ 3¼ |

The syringe should be plunged into warm water before giving the injection, to heat the fluid moderately. Paraldehyde is hypnotic and sedative.

| | |
|---|---|
| 9. Pereirin. hydrochlorat. | grs. 15 to 30 |
| Aquæ destillat | ℥ 5 |

Dose from 1½ to 6 minims in intermittent fever.

| | |
|---|---|
| 10. Thallin. sulphat | grs. 15 |
| Aquæ destillat | ♏ 75 |

The solution should always be warmed. One and a half grains of thallin, given hypodermatically, are sufficient to produce a fall of temperature of $2\frac{1}{10}°$ to $3\frac{1}{10}°$ in from six to nine hours.—*Journal de Médecine*, April 3d, 1887; *Med. News.*

**Pills for Colds.**—Dr. J. H. Whelan states that he has found a combination of belladonna, quinine, and arsenic almost specific in aborting common colds, if commenced in the early stage of the affection, while it is still confined to the nose and pharynx. The formula which he uses is the following:

| | |
|---|---|
| Quininæ | gr. xviij. |
| Liquoris arsenicalis | ♏ xij. |
| Liquoris atropinæ | ♏ i. |
| Extracti gentianæ | gr. xx. |
| Pulveris gummi acaciæ, | q. s. |
| Ut fiant pilulæ xii. | |

Sig. One every three, four, or six hours, according to circumstances.

Dr. Whelan states that at starting one pill should be taken every three or four hours, and later on six hours; and he believes that if a catarrhal subject has a box of these pills always at hand, he will almost invariably succeed in aborting a cold.—*Therapeutic Gazette.*

**Lotion for Styes.**—The *Medical Press* quotes Dr. Abadil as authority for a statement that:

| | |
|---|---|
| Boric Acid | 10 grammes |
| Distilled Water | 300 " |

applied frequently to an eyelid which is the seat of a stye, will not only effect a rapid cure, but prevent recurrence of the trouble.

---

* Vinum Opii, U. S. Ph., is an equivalent of this preparation.

**Iron With Sodium Salicylate.**—A mixture known in the Jefferson Medical College Hospital as the Mistura Ferro-salicylata and recommended by Dr. S. Solis-Cohen in chronic rheumatic affections, is the following:

| | |
|---|---|
| ℞ Sodii salicylatis | ʒ iv. |
| Glycerini | fl. ℥ ij. |
| Ol. Gaultheriæ | ♏ xx. |
| Tr. Ferri Chloridi | fl. ʒ iv. |
| Acidi Citrici | gr. x. |
| Liq. Ammonii Citrat. (Brit. Ph.), | q. s. ad fl. ℥ iv. |

M.

The mixture is clear and not unpalatable, and the usual dose is 2 fl. drachms, in water, 3 to 4 times daily. *Med. and Surg. Rep.*

**Formulas for Balsam of Copaiba.**—For external use:

| | |
|---|---|
| ℞ Balsam. Copaivæ | 2 parts. |
| Spirit. Juniperi | 3 " |
| Spirit. Ætheris nitrosi | 1 " |

M. Sig. 30 drops 4 times daily.—SCHŒMANN.

An emulsion for injection:

| | |
|---|---|
| ℞ Balsam. Copaivæ | 4 parts. |
| Sodii Carb. cryst. | 2 " |
| Aquæ | q. s. ad 100 " |

M. Sig. For injection.

This emulsion was originally a French prescription, but being a convenient and permanent emulsion has been widely used. It is commonly diluted with three parts water, when an intravesical injection is made; when excessive pain is present, a few drops of tincture of opium may be added.—JEANNEL.

| | |
|---|---|
| ℞ Balsam. Copaivæ, | |
| Extr. Cubebæ | āā ʒ 2½ |
| Cubebæ pulv., | |
| Myrrh. pulv | āā q. s. |

Ft. pil. 50 in num. Coat with gelatin.

Sig. Two or three pills several times daily.—*Med. News.*

**Picrate of Ammonium.**—The following is a formula for the administration of this substance, which has been used in the treatment of malaria:

| | |
|---|---|
| ℞ Ammonii Picratis | gr. 4½ to gr. 24. |
| Pulv. Rad. Glycyrrhizæ | gr. 24. |
| Syrupi Glycyrrhizæ | ♏ 24. |

M. div. in pil. 30 in num.

It should be observed that the salts of picric acid, when mixed with dry substances, form explosive compounds, and a liquid should always be used in their combinations. — *Therapeutische Monatshefte.*

**Ointment for Obstinate Acne.**—The following is known as Wilkinson's ointment.

| | |
|---|---|
| ℞ Naphthol | ʒ 2½ |
| Sulphur. præcipitat | ʒ 12½ |
| Vaseline or lanoline, | |
| Potassium soap | āā ʒ 6¼ |

M. ft. unguentum.

Sig. Local use daily.

—*Revue de Thérapeutique.*

**Iodol in Dentistry.**—For several years iodoform has been used in conjunction with eucalyptus oil for preparing carious teeth previous to stopping, and also in combination with wax as a temporary stopping. Its very unpleasant odor is, however, against it, and the recent introduction of *iodol* has been taken advantage of, and the new remedy is now gradually replacing iodoform in dental practice. Mr. Lloyd Williams gives the following formula (*Journ. Brit. Dent. Assoc.*):—

*Iodolized Wax.*

| | |
|---|---|
| Paraffin | ʒ ij. |
| Spermaceti | ʒ ij. |
| Iodol | ʒ i. |
| Carmine | gr. i. |
| Yellow wax | ʒ iij. |

Melt the waxes on a water-bath, and mix in the powders carefully and with constant stirring. Care should be taken not liberate the iodine by overheating, although iodol is not decomposed under a temperature of 212° Fah.

In using the wax, first of all dry out the canal with a saturated solution of iodol in chloroform, and having wrapped round a smooth Donaldson bristle with sufficient thin Japanese bibulous paper (which for this purpose is far preferable to cotton wool), apply a small quantity of the wax, and having gently heated over a spirit flame, so as to allow the paper plug to be soaked, the dressing is carried to the canal in a soft state, whilst the pulp chamber is filled with more wax, and sealed with the aid of a hot-air syringe. Iodol varnish is made by mixing 1 part of the saturated solution of iodol in absolute alcohol with 4 parts of negative varnish. This may be applied to remote canals by saturating Japanese paper with it instead of with the wax.—*Chem. and Drugg.*

**Blue Ink for Stamps and Pads.**—Dissolve 20 parts of borax in 200 parts of water, heat to boiling, and dissolve in it, at a boiling temperature, 20 parts of bleached shellac; dissolve 20 parts of gum arabic in 50 parts of water; with the latter solution mix intimately 10 to 20 parts of best ultramarine and add to the shellac solution when it is completed and has cooled off. Finally add enough water, if necessary, to make the total quantity of the water amount to 250 parts.—After *Der Fortschritt*, No. 9.

### Marking Ink.

THE following modification of Redwood's formula for marking ink has recently been published by several exchanges. We quote from the *Chem. and Drugg.*:

| | | |
|---|---|---|
| Nitrate of Silver | 8¼ | oz. |
| Sodium Bicarbonate | 4¼ | " |
| Solution of Ammonia (s.g. 0.900) | 8½ | " |
| Tartaric Acid | 9 | dr. |
| Archil | 1 | oz. |
| Soluble Sap Green | 1 | " |
| Powdered Acacia | 2¼ | " |
| Sugar | 1½ | " |
| Water | q.s. | |

Dissolve the silver and soda salts, each separately in 2 pints of boiling water, and mix the solutions. Allow the precipitate to settle, decant the fluid, and collect the precipitate on a paper filter, wash it with a pint of water, and, when drained, transfer it to a mortar; add the acid, and mix. When effervescence has ceased, add the ammonia solution, and transfer the whole to a bottle containing the sugar. Now dissolve the sap green in 4 oz. of water and the archil, by the aid of heat; add the acacia to the mixture, stir until dissolved, and strain. Add the ammoniacal solution to this, and make up to 20 oz. with water.

### Solution of Terpin.

IF it is desired to administer terpin in form of a solution, this may be accomplished, according to Teillet (*Archives de Pharm.*, 1887, 149), by treating the terpin with so-called dulcified nitric acid or spirit of nitric acid and then diluting with water:

| | |
|---|---|
| Terpin | 1 part. |
| Spirit of Nitric Acid | 6 parts. |
| Water | 100 " |

Spirit of Nitric Acid is the Acidum Nitricum Alcoholisatum of the French Pharmacopœia. It contains a certain amount of nitrite (and probably also nitrate) of ethyl. It is prepared by diluting 78 parts of nitric acid (sp. gr. 1.390 at 15° C.) with 22 parts of water, and adding the solution gradually to 300 parts of alcohol contained in a flask provided with a ground stopper. The stopper is to be loosened from time to time, during 2 or 3 days, in order to permit the generated gas to escape.

## BIBLIOGRAPHY.

PLAN OF STUDY FOR THE ASSISTANT IN PHARMACY. By A. B. PRESCOTT, Ph. D., pp. 16, sm. 8vo.

THIS reprint from the proceedings of the Michigan Pharmaceutical Association is especially desirable by those who have occasion to prepare themselves for examination by Boards of Pharmacy acting under the various State laws. There is probably no one in the country better fitted than Professor Prescott to offer suggestions as to how best to direct reading and study with a view to meet the requirements of these boards, and the publication of such instruction is very timely.

A COMPANION TO THE UNITED STATES PHARMACOPŒIA. Being a Commentary on the Latest Edition of the Pharmacopœia and containing the descriptions, properties, uses, and doses of all official and numerous unofficial drugs and preparations in current use in the United States, etc. With over 650 original illustrations. By OSCAR OLDBERG, Pharm.D., and OTTO A. WALL, M.D., Ph.G. Second Revised Edition. New York: William Wood & Co., 1887, pp. 1,216, 8vo.

THIS work is one of the most convenient and popular of the various commentaries which have appeared since the publication of the revision of 1880. The materials for it have been newly prepared as regards both the text and and illustrations. Its contents cover the general needs of the student, the retailing pharmacist, and the physician, not only with respect to official articles, but also as regards a very large number of drugs and preparations in very common use.

DRUG ERUPTIONS. A Clinical Study of the Irritant Effects of Drugs upon the Skin. By PRINCE A. MORROW, A.M., M.D., etc., New York: William Wood & Co., 1887, pp. 199, 8vo.

IT is only since the study of skin diseases has been made a subject of special study (and that quite recently) that the effects of drugs as a cause of such disturbances has received attention to any extent. The amount of knowledge relating to this topic has, however, increased rapidly within a comparatively short time and is very thoroughly embraced in the present volume.

ELEMENTS OF BOTANY. By EDSON S. BASTIN, A.M., F.R.M.S., Professor of Botany, Materia Medica, and Microscopy in the Chicago College of Pharmacy. Chicago: G. P. Engelhard & Co., 1887, pp. xv. 282, 8vo, 459 illustrations, cloth, $2.50.

THE text of this work is divided into four parts, devoted to Organography, Vegetable Histology, Vegetable Physiology, and Vegetable Taxotomy, to which is appended a Glossary of Botanical Terms. Following each chapter of Part I. are a number of practical demonstrations which are excellently chosen and adapted to familiarize the student with plant structures. Throughout the work the subject is treated plainly and with care to render it comprehensible by those who have had no previous knowledge of the subject. There is an abundance of illustrations, many of which are the work of the author, and all are excellent. So far as possible, the author has made use, for purposes of illustration, of native and ready available plants, so that whoever adopts the work as a text-book will have little difficulty in pursuing the course of study laid before him in a manner far more satisfactory and profitable than would be the case with most of the text-books that have heretofore been available.

The author and publisher are to be congratulated upon the practical nature and beautiful appearance of the book.

# American Druggist

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[Original Communication.]

## ZYGADENUS NUTTALLII: THE DEATH CAMOSS OF THE WEST.

BY J. U. AND C. G. LLOYD.

In the Rocky Mountain regions, extending west to the coast, there are several species of plants with which it would be well for physicians and pharmacists to become acquainted. They belong to the species known to botanists as Zygadenus, and are closely related to the plant that produces Veratrum. Dr. H. S. Goodell, who has met with a number of accidental poisonings from these plants, thinks it is one of the most violent poisons of the vegetable kingdom.

The plants have a close resemblance to the Wild Onion, as they have a white bulbous root and similar linear leaves. Children often mistake the plant for Wild Onion, and with fatal effect. One species in particular, *Zygadenus venenosus*, as the specific name implies, has established a reputation for its poisonous properties. It is called Hog's Potato and Death Camoss in the text-books.

Dr. Goodell, having been called to treat several cases of poisoning, sent us a specimen of the plant, which proved upon examination to be the *Zygadenus Nuttallii*, which is closely related to the aforenamed plant. The doctor writes as follows regarding his experience with the plant:

"I find it to be a powerful narcotic poison. One of my patients, a girl 9 years old, claimed that she only broke the stem of the plant and rubbed the juice on her lips and lapped it off with her tongue. Severe convulsions followed, lasting one and one-half hours, the most violent that it has been my lot to witness in a practice of thirty-five years; twenty-four hours later she had one of an hour's duration. I gave strong coffee from the start, used the bromides and gelsemium, stood over the patient three days and nights constantly. I write this that you may know there is a potency here not often met in the vegetable kingdom.

"*Symptoms.*—Extreme thirst, constant vomiting, dilatation of the pupil and coma, and (sequel) inflammation of the stomach.

"One young lady, not included in the above, says she tasted the plant and it made her very sick; she also states that the taste was fascinating and followed by a desire for more, and that it required all her will-power to resist."

This plant is now being investigated physiologically by Prof. Roberts Bartholow, and its constituents are being investigated by us. Perhaps the result will be of more than usual interest.

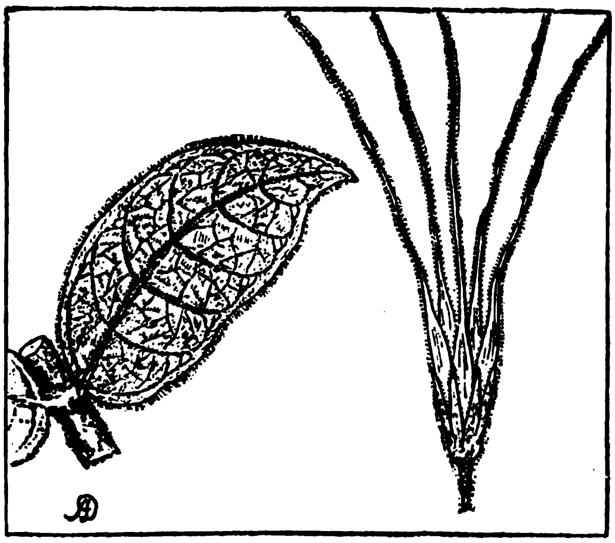


Fig. 1.—Oliver's Strophanthus hispidus.

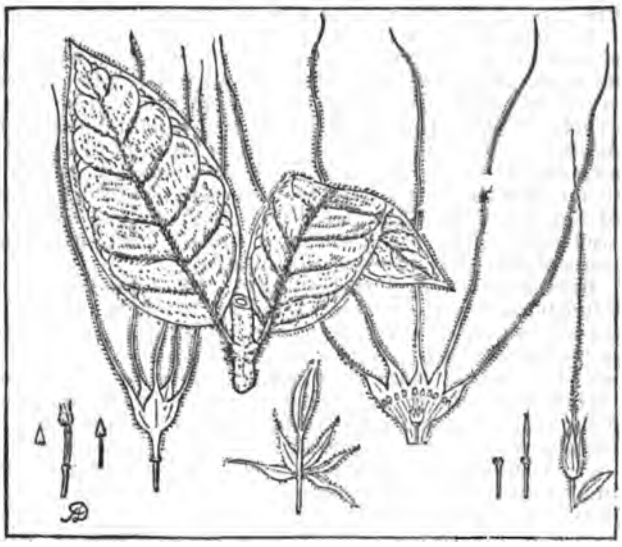


Fig. 2.—Strophanthus hispidus. (Annales du Muséum.)

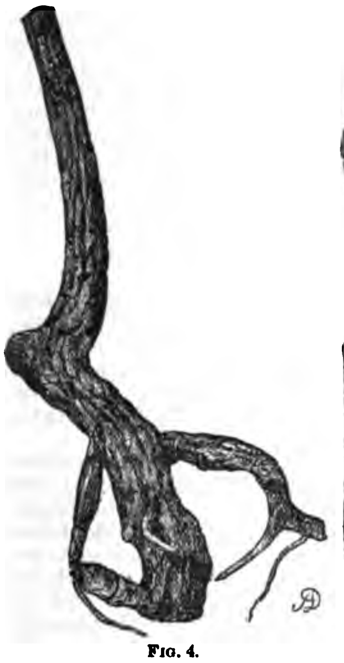
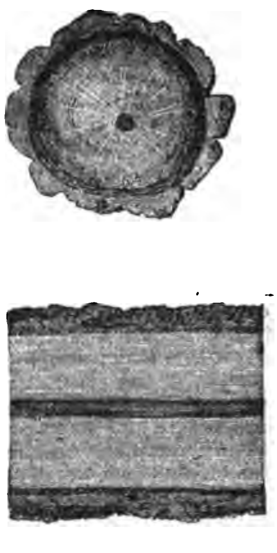


Fig. 4.



Figs. 5 and 6.

Three portions of the stem and root.

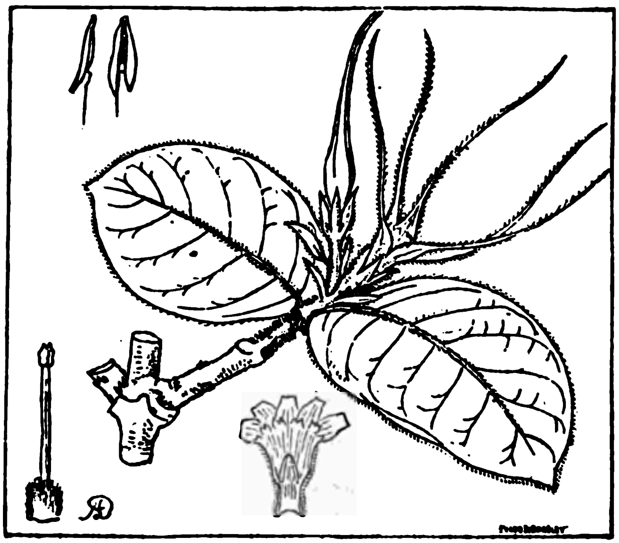


Fig. 3.—Strophantus Kombe.

## NOTE ON STROPHANTHUS.

As a supplement to our article on Strophanthus, on page 143 of our last year's volume, we take from the last issue of Thomas Christy's "New Commercial Plants and Drugs" (No. 10) those passages which refer to the two species which are of special interest medicinally. Mr. Christy says:

The foliage of this plant, the *S. Kombe*, of commerce, was sent to me, together with a supply of seed and pods; in fact, was the first large shipment of *Strophanthus* received in England.

There are several botanical differences in the herbarium specimens of leaves sent me from Inhambane, and those of *S. hispidus* in the herbarium at Kew; therefore, I have preferred to give a drawing of my plant (approved as *S. hispidus* by Prof. Oliver), and also a drawing taken from a plant found by Mr. Smithman at Sierre Leone, and figured in the *Annales du Muséum d'Histoire Naturelle.*

### *Oliver's Strophanthus Hispidus.*

This drawing was made from the leaves received by me from Inhambane, and which accompanies the shipment of seeds made to me in October, 1886.

The leaves differ in the veins being less prominent on the under surface, in the hairs being more appressed, and the leaf being more downy on the under surface. The seeds are smaller, with short awns, and the hairs on the seeds dark-brown and more spreading.

Together with this seed and leaf I received a piece of the root, which was described in the *British and Colonial Druggist*, to whom I am indebted for the engravings, and for the following description which accompanies it; I have retained the same numbering as in the journal:

### *The Stem and Root of the Strophanthus.*

This is an exact representation of the portion of the Kombe stem and root in the possession of Mr. Thomas Christy, F.L.S., drawn to a scale of one-sixth. In general terms, it may be said that the central and more or less vertical part is the trunk of this aggressive parasite, while the arms issuing thence, nearly at right angles, partake in some degree of the "root" characteristics.

The stem, or such part of it as is represented by the actual specimen now before me, is fairly cylindrical, and its most obvious feature is the rugose and deeply furrowed layer of cork bark which envelops the entire trunk, overlying the thinner and denser true bark beneath. The diameter, so far as we have it, varies from 1¼ to 2¼ inches, although there is some little evidence which leads to the belief that the larger part, from the elbow at the left hand of figure 4 downwards, has been lightly covered with withered leaves and grasses, so that it shortly begins to acquire some of the characters of a root-stem.

Figs. 5 and 6 are respectively the transverse, and longitudinal section of the stem, cut from the upper part shown in Fig. 4, and herein is depicted the ash-colored, not very soft pith, about 1 inch in diameter, the yellowish white, hard, tough wood, with the minute, nodular, and rather dark-tinted resin cells, which gradually deepen in color and increase in size as the exterior is approached. A thin, papery, dark-colored layer of bark is next reached, and outside this again comes the softer suberous covering, from about 0.1 to 0.17 inch in thickness. The remarkably straight and even "grain" of the wood is shown in Fig. 6, which also depicts the several structures of which it is composed—pith, wood in faintly defined annular markings, the thin rind or bark, and the corky exterior. These two sections are of the natural size.

In chipping or sawing this wood, a remarkable odor is given off, which greatly resembles that of scraped but slightly decaying horse-radish. The smaller parts of the root, down to about 0.5 or 0.4 inch in diameter, still retain the corky exterior layer, which now and then is divided transversely by deep annular clefts extending inwards as far as the true bark. The whole of this cork layer is of a gray, greenish-brown tint, and in the interstices of its numerous furrows and rugosities, tiny mosses and lichens are here and there observable. The taste of wood, bark, and pith is intensely bitter, and even the cork layer exhibits the same character, although in a less degree. From stem and root alike, but especially from the latter, a yellowish-white, acrid, milky sap is squeezed out, on application of some pressure, and the resin is one which requires further examination.

### *Strophanthus Kombe* (*Oliver*).

Prof. Oliver, in his description of this plant, states that it is found in various places between the coast and the centre of the continent above the Victoria Falls, and that it flowers in October and November. He then says:

Our flowering specimens, although not all that could be wished, I think justify the separation of this plant from *Strophanthus hispidus* D. C. of West Tropical Africa, one of the arrow poisons of Nigritania. *S. Kombe* differs in the few-flowered inflorescence and the narrower (linear, not lanceolate) and shorter calyx lobes which do not reach to the narrow sinuses of the throat, as in *S. hispidus*. The firmer texture of the calyx and bracts, and the early fall of the latter, appear to be aditional minor distinctions. The physiological action of the Kombe poison obtained from the seeds has been investigated by Prof. T. R. Fraser, who includes it in the class of cardiac poisons ("Proc. Roy. Soc.," Edinb., 1860–1870, p. 99).

Dr. Kirk describes the plant as a woody climber, growing in the forests both of the valleys and hills. The uppermost branchlets are of the thickness of a stout quill, often being scabrous, from the persistent indurated tuberculate bases of the coarse, deciduous hairs, which clothe the annual leafy shoots; the stems are much compressed at the nodes.

### *Chemistry and Pharmacology.*

Great difficulty has so far been experienced in obtaining the active principle strophanthin in a crystalline condition. Usually it was obtained in form of a powder. It is obtained from the seed, the pods, the external coating of the pod, and, in fact, from all available parts of the plant. It appears to be very powerfully toxic, so small a quantity as 1/50 grain having killed a large dog. The average dose for man is stated to be 1/300 grain. After many experiments had been made as to the most satisfactory method and strength for the preparation of the *tincture*, the following formula has been adopted as a standard, and it is most advisable, seeing the powerful properties of the drug, that no variation in the strength or preparation should be made from this formula, published by Prof. Fraser in the *British Medical Journal:*

Reduce the seeds, freed from stalks and hairs, to a moderately fine powder, and dry the powder for twelve hours at a temperature of from 100° to 120° F. One ounce, or one part of the powder, is then packed in a percolator, and ether, free from alcohol or water, is added until the powder is saturated and the ether begins to drop, when the percolation is stopped for 24 hours, after which it is allowed to go on slowly until 10 fluidounces, or 10 fluid parts of ether, have been used; if the last running of the ether is not almost colorless more should be used. The powder is then removed from the percolator and exposed to the air, or heated to 100° F. if necessary, to drive off the ether, any lumps being broken up, and the uniform, nearly white, dry powder is repacked in the percolator, and allowed to macerate in contact with sufficient alcohol of 84% for 48 hours; after which alcohol of 84% is passed slowly through until 20 fluid parts of percolate have been obtained.

[The original directs "Rectified Spirit." The Spiritus Rectificatus of the Brit. Pharm. has the spec. grav. 0.838, and contains 84.08% by weight, or 88.76% by volume of absolute alcohol. It may be conveniently prepared from U. S. alcohol by mixing 945 volumes of the latter with enough water to make 1,000 volumes, or 924 parts by weight with water to make 1,000 parts. Approximately, the same result is reached, with more simple proportions, by mixing 9½ volumes of U. S. alcohol and ½ volume of water. Pure U. S. alcohol would, of course, answer the same purpose.—Ed. Am. Dr.]

### *Strophanthus Hispidus.*

The accompanying engraving of *S. hispidus* (Fig. 2) is taken from the *Annales du Muséum*, and was made from a specimen found by Mr. Smithman at Sierra Leone. The flower has a funnel-shaped corolla; the anthers are not terminated by tail-shaped segments. The plant is covered with bristly hairs. Stem woody, sarmentose, fasciculate; peduncles repeatedly forked; furnished with acute bracts. Divisions of the calyx very deep, narrow, and acute. Corolla reddish and funnel-shaped. Tube narrowed at the base and widened at the summit. Corona consisting of ten nail-shaped obtuse appendages; limb with five short divisions, tapering into threads two decimeters long; anthers sessile, hastate, connivent, acute, and not terminated by awns; ovary, of two distinct follicles, and covered with white bristly hairs. Style simple, stigma capitate.

## Chloral Hydrate and Fehling's Solution.

Mr. J. J. Thomas, of London, in a paper on butyl-chloral recently read by him, made a statement that "the reduction of Fehling's solution by chloral hydrate is no doubt due to the formate produced by the alkali." This statement is taken exception to by Mr. J. E. Saul, of London, who writes to the *Pharmaceutical Journal* (June 11th) as follows:

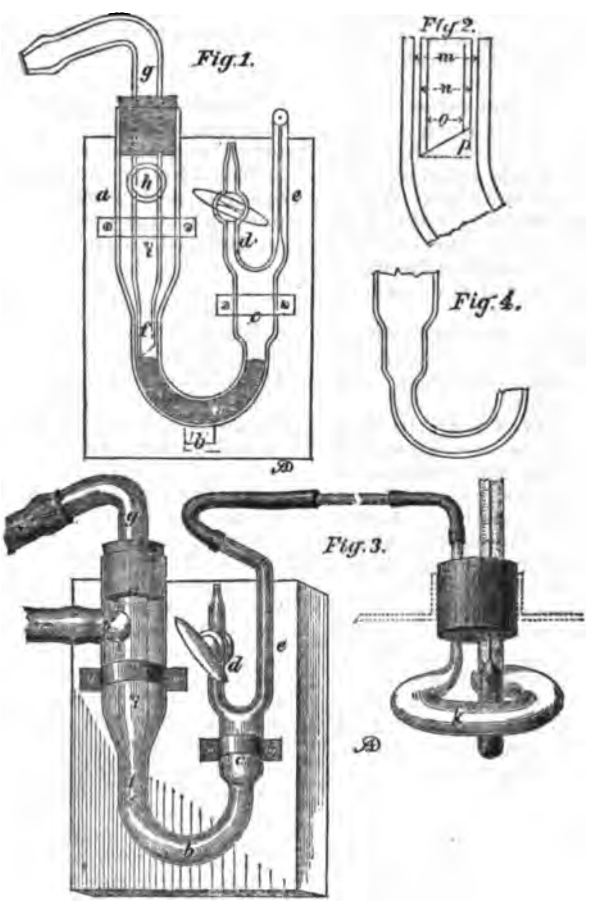
"Recently I had occasion to call attention to the action of Fehling's solution on chloral hydrate (see before, p. 856) and I then ascribed the decomposition to the chloroform produced. The matter at the time had only incidental interest, but before hazarding this statement, I had taken the precaution to examine the behavior of an alkali formate with Fehling's solution. I found that there was absolutely no reduction of the copper, even after boiling for some time, nor did the use of Trommer's, Pavy's, Schmiedeberg's, Cresswell's or Holland's modifications of the cupric test result in a different experience. I therefore unhesitatingly ascribed the decomposition only to the chloroform produced, the fact being well known that this body readily reduces an alkaline cupric solution. The non-reduction of copper by butyl-chloral tends to confirm my statement, as no chloroform is formed on treating with caustic alkali. Curiously enough, Hoffmann and Power, in their standard work on the examination of medical chemicals, ascribe the rapid reduction of copper by chloroform to the formation of a minute trace of sodic formate. This opinion they probably base on the fact that chloroform, when superheated with aqueous or alcoholic potash, is split up, forming potassic formate and chloride. On the other hand, chloroform can be distilled unchanged from aqueous potash. If, therefore, any formate is produced at the temperature employed, the rapidity and amount of the copper reduction would tend to negative the idea of its exercising any function whatsoever in the reaction, even intermediate or catalytic."

## A NEW AND PRACTICAL THERMO-REGULATOR.

L. Ruegheimer describes a very efficient and practical thermo-regulator which has been used by him for a number of years in the laboratory of the University of Kiel.

The apparatus consists of a thick-walled glass tube *a*, *b*, *c*, of the shape shown in the cut. The expanded portion at *c* terminates in two branches, one of which contains the glass stop-cock *d*, while the other consists of a thick-walled tube *e*. At *h*, a lateral tube is fused upon *a*. The upper, wide-neck is closed with a tight stopper, through which passes a glass tube, which is connected, by rubber tubing, with the gas supply. The tube *h* leads to the burner, and the tube *e* is connected, by means of very stout and narrow-bored rubber tubing, with an empty glass vessel (a flask will answer, but the author seems to prefer the glass coil shown in the cut) situated within the hot-air chamber. Fig. 1 shows the principal part of the apparatus in section. Supposing the stop-cock *d* is opened, thereby establishing communication between the outer air and the interior of the air-expansion vessel *k*. If the supply of gas is turned on, it will enter at *g*, pass through the inner tube, and issue at the obliquely cut-off orifice *f* over the surface of a small quantity of mercury contained in the lower part of the U-tube. It will ascend in the interval between the two glass tubes *a* and *f*, and pass out through *h*, whence it will be led to the burner (not shown on the cut). As long as the stop-cock *d* is kept open, the apparatus will not affect the supply of gas in any way. When it is closed, however, the air expanding in the glass vessel cannot find its way any longer into the outer air, but will gradually depress the column of mercury in the limb *c*, until the orifice *f* in the other limb will be closed. The supply of gas would then cease entirely were it not for a small hole at *i* (in the inner tube), through which a sufficient quantity reaches the burner to prevent the flame from going out altogether. As soon as the temperature of the air-chamber falls a little, the mercury will recede from the orifice *f*, and the gas supply be re-established. The temperature at which the apparatus is to act may be regulated by pushing the inner tube *g*, *f* further up or down.

As it is of some importance to preserve certain definite proportions between the different parts of the apparatus, the author appends specific directions.



Ruegheimer's thermo-regulator.

The length of *p*, representing the pitch of the obliquely cut-off orifice *f*, ought to be equal to half the diameter of the tube at *n* (see Fig. 2). The diameter *m* of the outer tube *b* is to be selected so that the area of the passage between the inner and outer tube is as nearly as possible equal to the area of the bore *o* of the inner tube, so that the current of gas issuing from *f*, when this is uncovered by mercury, will pass between the tubes without alteration of pressure. The air-expansion vessel within the hot-air chamber should be chosen of as large a calibre as possible.

The particular apparatus described by the author consists of an air-bath for heating glass tubes closed by fusion. The air reservoir (*k*) has an internal capacity of about 350–360 C.c., and consists of a thin-walled glass tube bent in form of a ring, closed at one end by fusion, and terminating at the other in a thick-walled tube of not quite 1 millimeter bore. This is connected by a very strong rubber tube with the tube *e* of the same narrow bore. The tube *f* has a diameter of 5 millimeters at *o* (Fig. 2), and its walls are 0.75 millimeter thick. The tube *b* has a diameter *m* of 8¼ millimeters.

If the temperature, in the beginning, after starting the apparatus, should rise too high, the stop-cock *d* is opened, and the supply of gas shut off altogether until the temperature has fallen sufficiently. Whenever the gas is turned off entirely, the stop-cock *d* must be opened to prevent the mercury from being aspirated towards the air reservoir.—After *Ber. d. Deutsch. Chem. Ges.*, 1887, 1,280.

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A daily paper informed its readers that isinglass is obtained from the swimming bladder of a fish, and the principal use of which is to put in the doors of stoves.—*West. Drugg.*

## Improvement of Dieterich's Method of Assaying Opium.

Dieterich's method of opium assay, published on page 6 of our last January number, has been critically examined by several competent authorities, who have acknowledged its merits and great advantages over those previously proposed, but have suggested certain improvements, which are calculated to make it still more exact. Mr. Eugene Dieterich, the author of the method, has now revised it in some minor details, and we give in the following the substance of his paper on the subject in the *Pharmaceutische Centralhalle* (No. 21):

The original process directed opium to be extracted with 10 parts of water, by maceration. It is based upon Flückiger's method, and is acknowledged to have yielded satisfactory results.

One of the principal questions that required to be decided was whether maceration could not be replaced by a shorter method of extraction. Besides, it was desired to ascertain whether other improvements, looking to a simplification of the method, could not be introduced.

### A. *Maceration.*

A long-continued maceration, with occasional agitation, has been objected to, as it compelled the personal attendance of the operator at stated times, even during the night. For this reason, experiments were undertaken to find out whether *trituration* of the opium *in powder* would not accomplish the same thing. Comparative tests, made by both methods upon the same opium, have shown that the last-named method yields equally accurate results as the former. The trial tests were made with opium in rather coarse powder, which was thoroughly triturated in a mortar with water. As the results were so satisfactory, it follows that with opium, in *fine powder*, they must be at least equally good, and probably more uniformly obtainable.

### B. *The Strength of the Aqueous Solution of Opium, and its Effect upon the yield of Morphine.*

This question was taken up in consequence of the author having noticed the following facts:

1. If a *concentrated* aqueous solution of a morphine salt is mixed with ammonia, pure morphine is *at once* separated as a precipitate in a micro-crystalline condition.

2. If a dilute aqueous solution of a morphine salt, containing 1% of the latter, and therefore about representing the strength of an opium solution as directed by the author's method, is treated with much or little ammonia, the solution remains *clear*, and the morphine separates only gradually in a crystalline condition.

This peculiarity of morphine salts assists the author's method and permits, for the removal of narcotine, to employ a considerable excess of ammonia (up to 3 C.c. of normal ammonia,* so that the narcotine may be filtered off, before the morphine begins to crystallize.

It was next attempted to find out from what concentration of the opium solution the highest yield of morphine was obtained. A series of solutions were prepared, from 1 part of opium, with 5, 6, 7, 8 and 10 parts of water respectively, the same opium being, of course, used for this set of experiments. As a result it was found that the proportion : opium 1, water 5, yielded the largest amount of morphine, but the latter was much more impure in this and other concentrated solutions than in the more dilute ones. The brightest and clearest morphine was obtained from the proportions 1 : 8, and 1 : 10.

The following table shows the differences in yield from different concentrations:

| Kinds of Opium. | Relation of Opium and Water. | Yield of Morphine. % | Difference. |
|---|---|---|---|
| I.......... | 1 : 8 | 12.42 | 0.31% |
|  | 1 : 10 | 12.11 |  |
| III..... ..... | 1 : 8 | 16.23 | 0.29% |
|  | 1 : 10 | 15.94 |  |
| IV........... | 1 : 8 | 13.81 | 0.36% |
|  | 1 : 10 | 13.45 |  |

---

* "Normal Ammonia" is the standard volumetric solution prepared by diluting 170 Gm. of Water of Ammonia of 10% with Distilled Water to 1,000 cubic centimeters.

When using the proportion 1 : 8, about 0.3% more of morphine was obtained, and this was even of a purer condition than that derived from a 1 : 10 solution. The proportion 1 : 8 was therefore adopted as preferable.

Upon the basis of these experiments mainly, the following improved method of assay has been proposed by Dieterich:

### *Improved Opium Assay.*

### I. *For Opium.*

Triturate 6 Gm. of the finely powdered opium in a mortar carefully with 6 Gm. of water, dilute and wash the mass with water into a suitable tared small flask, and add enough water to make the mixture weigh 54 Gm.

Macerate, with frequent stirring, during 1 hour, and then filter through a plaited filter of a diameter of 10 C.c.

Take 42 Gm. of the filtrate, mix it with 2 C.c. of normal ammonia, mix well, without strong agitation, and pass it at once through an already prepared plaited filter of 10 C.c. diameter.

36 Gm. of this filtrate, representing 4 Gm. of opium, are mixed in an exactly tared Erlenmeyer flask, by circular rotation, with 10 Gm. of ether; next 4 more C.c. of normal ammonia are added, the swinging or rotating motion continued until the liquid has become clear, the flask then corked and set aside.

After standing 5 or, at most, 6 hours, the ether layer is first transferred, as completely as possible, upon a plain filter of 8 C.c. diameter; then 10 C.c. more of ether are added to the contents of the flask, the whole again rotated and the ether layer again passed through the filter. When this has run through, the aqueous solution is poured in without having regard to the crystals which adhere to the walls of the flask. Finally, the latter, as well as the filter are washed with two successive portions of 5 C.c. each of water saturated with ether.

After the flask and filter have been allowed to drain well, both are dried at 100° C., the minute quantity of matter retained by the filter transferred to the flask, and the drying continued to a constant weight.

*Note.*—When the opium solution is mixed with the first portion (2 C.c.) of normal ammonia, it is recommended to avoid shaking, and subsequently, after the addition of ether and more ammonia, a rotating or swinging motion is recommended, both for the purpose of avoiding a foaming or emulsification of the mixture. During the filtration of the morphine, the use of ribbed funnels is advantageous, as the filtration is thereby much facilitated.

In calculating the quantity of solution corresponding to 4 Gm. of opium, Dieterich assumes that opium yields to water 60 parts of soluble matter; consequently, 6 Gm. of opium and 48 parts of water should yield 51.6 parts of aqueous solution; and, therefore, 34.4 Gm. would correspond to 4 Gm. of opium. After 42 Gm. of the solution had been mixed with 2 C.c. of normal ammonia, 36 Gm. of the mixture corresponded to 4 Gm. of opium.

### II. *For Extract of Opium.*

Dissolve 3 Gm. of the extract in 40 Gm. of water; mix the solution without unnecessary agitation, with 2 C.c. of normal ammonia, and pass at once through a ready prepared plaited filter of 10 C.c. diameter.

30 C.c. of the filtrate, corresponding to 2 Gm. of the extract of opium, are then treated further, as directed under "I. *Opium.*"

### III. *For Tinctures of Opium.*

50 Gm. of tincture of opium are evaporated in a tared capsule, upon a water bath, to 15 Gm.; this is diluted with water to weigh 38 Gm., 2 C.c. of normal ammonia added, the whole mixed by once agitating, and immediately passed through a ready prepared plaited filter of 10 C.c. diameter.

32 Gm. of the filtrate, corresponding to 40 Gm. of the tincture, are then further treated as directed under "I. *Opium.*"

### *C. Is it possible to extract the narcotine precipitated by ammonia, with ether, so as to avoid filtration ?*

Mr. Dieterich having ascertained the fact that the narcotine, freshly precipitated by ammonia, as described in the preceding method, was readily soluble in ether, he thought that this alkaloid could be removed by washing the solution with ether, thus saving one filtration. Of course, there was a probability that the ether would also dissolve a small amount of the morphine, already set free and still in solution. Yet this morphine would again crystallize from the ethereal solution, though, of course, in a very impure state.

Experiments showed that the surmise was correct. A solution of opium, shaken with an equal volume of ether, becomes indeed turbid when mixed with ammonia, but becomes clear again on strong shaking, so that the separation of morphine from the resulting mixture proceeded in a normal manner.

The author, therefore, proposes, alongside of his *improved method*, the following

### *Simplified Assay of Opium.*

### I. *For Opium.*

Triturate 5 Gm. of finely powdered opium in a mortar, carefully, with 5 Gm. of water, dilute and wash the mass with water into a small glass flask until it amounts to 45 Gm.

Macerate, with occasional stirring, for 1 hour, and filter through a plaited filter of 10 C.c. diameter.

To 34.4 C.c. of the filtrate, corresponding to 4 Gm. of opium, add 20 Gm. of ether, shake strongly and then add 2 C.c. of normal ammonia, continuing the strong shaking, until the separated narcotine has been dissolved by the ether.

When the liquid is clear, add 3 more C.c. of normal ammonia; shake well and set the flask aside.

After 5 or, at the most, 6 hours, filter the morphine in the manner directed under the "improved method."

*Note.*—After the addition of the second portion of normal ammonia, the two layers of liquid are apt to form an emulsion, but on standing they readily separate. The emulsion is no obstacle to the separation of morphine.

Whatever morphine has been set free and dissolved by the ether crystallizes from it again, all but mere traces.

### II. *For Extract of Opium.*

Dissolve 2.5 Gm. of the extract in 35 Gm. of water, macerate during 1 hour, and filter through a plaited filter of 8 C.c. diameter.

To 30 Gm. of this filtrate, corresponding to 2 Gm. of the extract, add 20 Gm. of ether, and then two successive portions, of 2 C.c. each, of normal ammonia, precisely as directed in the preceding paragraph.

### III. *For Tinctures of Opium.*

Evaporate 50 Gm. of Tincture of Opium in a tared capsule, on the water-bath, to 15 Gm., dilute with water to 40 Gm. and filter.

To 32 Gm. of the filtrate, corresponding to 40 Gm. of the tincture, add 20 Gm. of ether, and two successive portions, of 2 C.c. each, of normal ammonia, proceding in the same manner as previously directed.

Mr. Dieterich appends analytical figures, to show how far the several methods may be considered as trustworthy.

From these figures it appears that the "*improved method*" yielded from a certain kind of opium a quantity of morphine varying between 13.70 and 14.15 per cent. The "*simplified method*" applied to the same opium yielded between 13.70 and 13.95 per cent. The morphine obtained by the former method yielded to ether 1.0 to 1.6 per cent of soluble matter, that obtained by the second method 1.0 to 1.8 per cent. In both cases the morphine was free from calcium. The only material difference in the results is this, that the morphine obtained by the "*simplified process*" is in fine crystals (owing to the shaking), instead of in a handsome, well-developed crystals like that furnished by the other.

The author points out that it is of comparatively little importance whether more or less of an excess of ether is added when the narcotine is to be removed in the "improved process." But, when the first portion of ammonia has been added, it is necessary to filter at once, to prevent a separation of morphine.

### Alleged Evil Effects of Indian Hemp Corn Cure.

THE well-known combination of extract of cannabis indica, salicylic acid, and collodium has been used for a number of years with very good success, and without any evil effects so far as known. In a recent number of the *Rundschau* (Prag), Edmund Campe relates his experience with this application, which had very serious consequences, at least according to the report. The physicians who were summoned declared the patient to have contracted blood-poisoning through the cannabis indica (!). The swelling and pain appear to have been excruciating, and the patient was kept nine weeks on his back.

By way of comment, the reporter adds that "it is therefore evident that cannabis indica may cause blood-poisoning not only through an open wound, but may do so also, as in his case, through a thin new membrane or skin, etc."

On our part, we cannot help thinking that the blood-poisoning must have been caused, under the circumstances, by something else.

### Narceine.

LABORDE has been studying, for the last few months, the action of a new narceine. The Paris correspondent of the *Lancet* states that the preparation of this substance is extremely difficult, and that found in the trade contains a large proportion of other alkaloids of opium. M. Duquesnel has succeeded in obtaining narceine containing only a small quantity of laudanine and codeine, and, from numerous trials upon animals and upon man, M. Laborde states that this product has a happy sedative effect upon the nervous centres, and is an admirable medicine for whooping-cough and bronchitis, an opinion which is shared by M. Brown-Séquard.—*Chem. and Drugg*,

### Butter Testing.

Dr. H. Hager recommends the Reichert-Meissl method of examining butter, the chief feature of which is a determination of the *volatile fatty acids*. The method is simpler and more expeditious than Hehner's. The butter is filtered and five grains are saponified with pure sodium hydroxide (two grammes) in presence of alcohol (80 per cent). The volatile fatty acids are separated by decomposition with sulphuric acid and distillation, and estimated by titrating the distillate with decinormal alkali. The following table gives the number of C.c. of the latter required to neutralize the distillate in the case of certain typical fats:

| | |
|---|---|
| Normal butter | 26 to 31 C.c. |
| Oleomargarine | 1.9 " |
| Cacao butter | 7.4 " |
| Lard | 0.6 " |

—*Chem. Centralbl.* and *Journ. Chem. Soc.*

### The Manufacture of Cachets and Wafers.

The recent death of Limousin, the inventor of the wafer-capsules (cachets, capsulæ amylaceæ), suggests the idea of again drawing attention to the utility of this form of medication.

In recent times, the development of the wafer-capsule industry, if it may be so called, has been especially promoted by Mr. Adolph Vomacka, of Prag, whose special apparatus has been illustrated by us on page 221 of our volume for 1885.

While it would be an unprofitable undertaking for every dispensing pharmacist to undertake the preparation of his own wafers, it is believed that a profitable business could be carried on by at least one, or perhaps even more, manufacturers in each country. To a certain extent, the choice of this form of medication depends somewhat upon the rate with which its existence or availability is kept before the memory of the prescriber. It only needs a slight impetus, from time to time, to cause a preference in favor of the wafer-capsule over some other forms of medication, though it is by no means intended to assert that this is in all cases the best form. We believe, however, that it is, for instance, preferable to gelatin capsules, in the case of quinine.

Formerly, the wafer-capsules were pressed from the large square wafers (for which Nuremberg has long been celebrated); at the present time, however, they are baked specially. The cost of fitting up a factory is very small, and the arrangements required are simple, requiring but little room and only cheap labor. The most expensive item of the whole are the forms. These are made of two hinged pieces, the material being either steel or brass. One of the plates contains the concave, the other the convex pattern of the wafers.

These forms rest upon one or more specially constructed ovens heated either by gas or wood-charcoal. As soon as the opened forms, resting on the hot oven, have acquired the proper temperature, which is easily recognized by allowing a drop of water to fall upon them, a certain quantity of a mass prepared from wheat-starch is spread upon one of the plates and the other plate gradually folded over it. The latter, through its own weight, expands the mass so that it forms a perfectly uniform layer. The excess of the mass, which is squeezed out at the side, is simply scratched off. The forms are then opened, and the completely baked sheet taken out. This sheet contains as many half wafer-capsules as there are patterns. When freshly taken from the form, these sheets are very brittle, but after being laid aside a few days, they absorb enough moisture from the air to permit being cut or trimmed. The next operation then is the cutting or punching out of the round wafers. For this purpose there are used either simply punches, or punching machines worked by treadles, by means of which each separate wafer is cut out. These are then counted and put up in packages.' A well trained girl is able to bake, in one day, 20,000 such wafers, and it requires the service of only two girls to punch these.

The mass of which the wafers are composed consists of the purest wheat-starch, mixed with water. The best fuel is either gas or wood charcoal. There being only a few requisites, it will be easy to calculate the cost of a day's turn out.

The whole art and mystery of the manufacture centres in the forms, which must be absolutely true and perfect. If the forms are not exactly true, the wafers will be uneven. The least defect of the forms will be prominently visible upon the product.*

The preparation of flat wafers, such as are used for making sealing wafers, sacramental wafers, wafer-bottoms for ginger-cake, etc., is much more simple than that of the medicinal wafers. The former are baked in similar metallic forms, which are, however, entirely smooth inside. The thickness of the wafers depends, of course, upon the distance intervening between the plates when they are closed.

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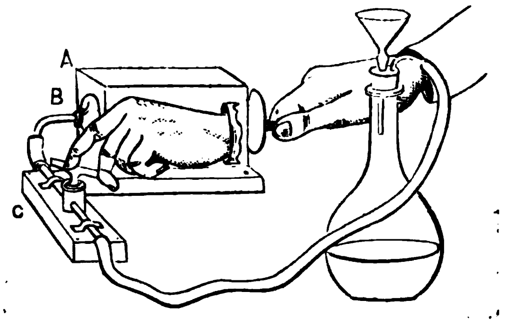
* Mr. Adolf Vomacka, of Prague, Austria (Brenntegasse 18), makes a specialty, not only of the capsuling apparatus, but also of the forms required to make the wafers themselves. Intending purchasers will do well to communicate with him.

### A SIMPLE QUICK-FILTERING APPARATUS.

The accompanying cut represents a quick-filtering apparatus, devised by the writer some four or five years ago, and which, in the absence of a head of water, answers fully all the purposes of the Bunsen pump. B is an ordinary hard-rubber syringe, five inches long, fixed in a block, A (which is a piece of pump stock with a bore to suit the diameter of the syringe and screwed to the table); and C is a three-way stop-cock worked with the left hand, while the right hand works the piston of the syringe.

The idea was suggested by the text of Fleischer's Volumetric Analysis, Muir's translation, pp. 28 and 29, and the translators, p. 269, where devices inferior to this are described.—Woodville Latham in *Am. Chem. Journ.*



Latham's quick-filtering apparatus.

### SOME NEW FORMS OF APPARATUS.

E. Pollack describes the following simple modifications of laboratory utensils:

Fig. 1 represents a dropping funnel, having a hollow stopper extending to a tube, and a small inlet-tube attached to the neck of the funnel, which can be made to communicate with the bore of the stopper so as to admit the air. If the stop-cock below is opened, and the stopper suitably turned, the contents of the funnel may be made to escape at any desired rate of slowness. The air to be admitted into the funnel may first be passed through wash- or drying-bottles, or some indifferent gas may be admitted in place of it.

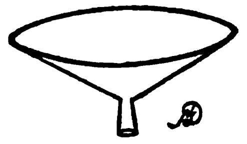


Fig. 2.

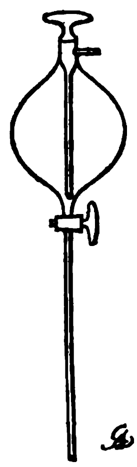


Fig. 1.

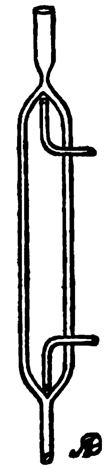


Fig. 3.

Fig. 2 represents a flat funnel made of cryolite or black glass. It is intended for introducing powders into flasks or other apparatus, for which purpose glazed paper has generally been used. The expanded neck prevents chocking of the latter.

Fig. 3 shows the construction of a new condenser, in which the jet of cold water is made to impinge upon the hottest part of the interior, thereby insuring the most effective cooling of the vapors.—*Rep. d. anal. Chem.*, 1887, 287.

### Liquid Paraffin as a Reagent.

This substance dissolves in all proportions in alcohol and ether, which is rendered turbid by the smallest quantity of water or aqueous alcohol. Absolute alcohol takes up only a certain quantity of paraffin oil, and if brought in contact with a larger quantity of paraffin, two clear liquids separate out—pure paraffin oil and a saturated solution of it in the alcohol. If a small quantity of aqueous alcohol is brought in contact with the latter, an immediate turbidity is produced. If 20 C.c. of chloroform or absolute alcohol are mixed with 0.04 C.c. of a 50 per cent alcohol, and a few drops of paraffin oil are added, a distinct turbidity appears. The author finds, further, that paraffin oil freely dissolves chlorine, iodine, and bromine.—L. Crismer, quoted in *Scient. Am.*

* * *

**Knodalin** is a mixture recommended by C. Barenthin for the purpose of killing parasites and insects upon plants. It is a reddish-brown, oily, alkaline liquid, having a strong odor of amylic alcohol, and is prepared from:

| | | |
|---|---|---|
| Nitrobenzol | 2 to 3 | parts |
| Xanthogenate of Potassium | 10 | " |
| Potash-Soap, containing 60% water | 400 | " |
| Amylic Alcohol | 600 | " |

[Xanthogenate of potassium is formed when bisulphide of carbon is treated with alcoholic solution of potassa. It is a salt in which the bisulphide appears to be *added* to the alcoholate of potassium: $C_2H_5OK.CS_2$. This salt and other xanthogenates have previously been already proposed as destroyers of plant insects.]

## Therapeutic Equivalents of the Salts of Quinine.

| Salt of Quinine. | Formula | % of Alkaloids. | Solubility of 1 part in water at 15° | 1 gramme of water dissolves | Required to give 1 gramme of anhydrous quinine. | Pharmacopœias in which they are official. |
|---|---|---|---|---|---|---|
| Hydrate | $Qu.^*3H_2O$ | 85.72 | 16.70 | 0.00059 | 1.16 | France, Belgium, Spain, United States, Rome, Sweden. |
| Acetate | $Qu.C_2H_4O_2$ | 84.37 | Slight | .... | 1.18 | Spain. |
| Chlorhydrate (basic) | $Qu.HCl.2H_2O$ | 81.71 | 21.40 | 0.046 | 1.22 | France, Germany, Austria, Belgium, Denmark, Spain, United States, Holland, Hungary, Norway, Rome, Russia, Sweden, Switzerland. |
| Lactate (basic) | $Qu.C_3H_6O_3$ | 78.26 | 10.29 | 0.097 | 1.27 | France, Switzerland. |
| Bromhydrate (basic) | $Qu.HBr.H_2O$ | 76.60 | 45.02 | 0.022 | 1.30 | France, United States. |
| Valerianate (basic) | $Qu.C_5H_{10}O_2$ | 76.06 | 33.70 | 0.029 | 1.31 | France, Germany, Belgium, Spain. |
| Sulphate (basic) | $Qu_2.H_2SO_4 7H_2O$ | 74.31 | 5.81 | 0.0017 | 1.34 | All pharmacopœias. |
| Sulphovinate (neutral) | $Qu.SO_4HC_2H_5$ | 71.20 | 3.30 | 0.303 | 1.39 | In no official pharmacopœias. |
| Arseniate | $Qu.H_3AsO_4.16H_2O$ | 69.38 | Slight | .... | 1.44 | Greece, Russia, Switzerland. |
| Salicylate (basic) | $Qu.C_7H_6O_3.\frac{1}{2}H_2O$ | 68.79 | 8.63 | 0.0011 | 1.45 | France, Russia. |
| Citrate | $Qu_2.C_6H_8O_7.7H_2O$ | 67.08 | 8.20 | 0.0012 | 1.49 | Belgium, Greece, Holland, Russia, Switzerland. |
| Bromhydrate (neutral) | $Qu.2HBr.3H_2O$ | 60.67 | 6.31 | 0.158 | 1.64 | France. |
| Bisulphate | $Qu.H_2SO_4.7H_2O$ | 59.12 | 8.81 | 0.113 | 1.69 | France, Germany, Austria, Spain, United States, Greece, Hungary, Rome, Switzerland. |
| Ferrocyanhydrate | $Qu.FeCyH_4.2H_2O$ | 56.25 | Slight | .... | 1.77 | France, Belgium. |
| Iodhydrate (acid) | $Qu.I.HI$ | 55.95 | .... | .... | 1.78 | Greece. |
| Tannate | $Qu.(C_{14}H_{10}O_9)_2.8H_2O$ | 22.60 | 8.00 | 0.0012 | 4.42 | France, Germany, Austria, Belgium, Greece, Holland, Italy, Russia, Switzerland. |

* For perspicuity's space, the abbreviation "Qu." has been put in place of the formula for quinine: $C_{20}H_{24}N_2O_2$.

—After M. Boymond, in *Bulletin Therap.*

### The Iodine Convention.

At the commencement of the present year, the price of iodine, which has for some time been very low, and was expected to experience a further decline in consequence of the anticipated collapse of the combination of producers, suddenly, and to the astonishment of many dealers in the article, rose to 9*d.* per oz. The convention of the producers of iodine had been renewed, but the parties interested in it wisely kept their own counsel, and were enabled to reap a substantial benefit as the reward of their discretion. The new convention, to which most, if not all, of the manufacturers and the principal holders of stocks in Europe, the United States, and the west coast of South America have acceded, was registered on February 18th, at Iquique—the principal port of shipment in the iodine district—now held by the Chilians. The agreement, we understand, has been concluded for a term of three years, commencing on January 1st, 1887, and it has been resolved that during this period the sale of the entire product will be vested in one exclusively. The European manufacturers are to have for their share 40½ per cent of the total sales effected, so long as the latter do not exceed 336,000 lbs. If the sales of iodine exceed that quantity—which means about ten months' consumption, and is, therefore, probably to be taken as an annual limit—90 per cent of the excess will fall to the share of the Chilian producers.

The parties interested in the convention, in addition to the English and French producers, are divided into three categories, viz.:

Firms possessing iodine manufactories in working order and holding stock in Europe.

New manufacturers, carrying no stock in Europe.

Owners of iodine holding stock in Europe, who are not at the same time manufacturers of the article in South America.

The parties falling under the first category will be compelled, under the terms of the agreement, to suspend the manufacture of iodine until their surplus stocks have been cleared off by their share of monthly allotments of sales effected. It is said that some firms hold enough stock in Europe to require two and a half or three years before, under this system, they will be allowed to resume working, and if the estimate of the European stock owned by Chilian holders is correct, this clause will apparently be tantamount to a virtual cessation of iodine production in the old Chilian works during the terms of the convention.

The new producers of iodine, forming the second class of contracting parties, have their output strictly limited to the quantity assigned to them as their monthly share of the orders. Firms who hold stock in Europe, but who do not possess works in South America, have to submit to a fixed reduction on the amount of their monthly share of the sales, in order to recoup the producers for the compulsory limitation or temporary cessation of their output. The producing capacity of all works included in the convention will be estimated, and the share of each contracting party in the orders is to be fixed according to the relation between the producing capacity of his work and his estimated annual consumption. To commence on January 1st, 1887, the price for iodine for metallurgical and dyeing purposes is fixed at 6*d.* per oz., and for all other, including pharmaceutical uses, at 9*d* per oz.

The aggregate capacity of production of sublimed iodine of not less than 98 per cent standard in the South American works at the end of last year was estimated at 25,560 quintals, or 2,594,340 lbs; the European stock of Chilian iodine at 10,177 quintals, or 1,032,965 lbs.; the export of iodine from the South American west coast in 1886 at 3,825.88 quintals, or 388,327 lbs.; and the world's consumption at 4,000 quintals, or 406,000 lbs. These figures would prove that Chili is at present capable of producing six and a half times as much iodine as is required for all purposes to which the article is applied, and it must not be forgotten that there is at present no prospect of any considerable extension in the use of the article, even though the price should fall to a third or a fourth of that prevailing. The stock of Chilian iodine now held in Europe would alone suffice for two and a half years' consumption, and the convention must therefore necessarily restrict the output of iodine in South American to a very small fraction indeed of the present producing capacity. The directors of the iodine association purpose, it is said, to gradually raise the price considerably beyond their present quotation, and as they control the market at this moment they will probably succeed. But the combination is likely sooner or later to come to grief through the impatience of its own members to submit to an artificial stunting of their producing powers, nor could the collapse of an association based upon principles so essentially vicious from an economical point of view be regretted, however disadvantageous it might be to its own component parts.—*Chem. and Drugg.*, June 18th, 1887.

### The Influence of Alcohol upon Digestion.

C. A. Gluzinski has studied the effect of the presence of alcohol in the human stomach, upon the process of digestion. The experiments were made upon a man to whom, at certain periods, the coagulated albumen of one egg, together with a measured quantity of water, was administered. At regular intervals, the contents of the stomach were aspirated by means of Jaworski's aspirator, and the experiments continued daily, with the modification that the periods between the several aspirations were gradually lengthened, until the removed gastric contents were completely free from albumen. In the first series of experiments, only albumen and water were given; in the next series, equal quantities of a 25 or 50 or 75% alcohol or of brandy were given in addition.

The influence of the alcohol exhibited itself in two clearly distinguishable stadia. As long as alcohol was present in the stomach, the digestion was greatly retarded. But when the alcohol had disappeared, which usually required only a short time (½ to 1 hour), the rate of acidity of the stomach took a sudden increase to 2 or 3 times the buantity found when no alcohol had been given. From this point on, the digestion then proceeded much more rapidly, and was sooner terminated in spite of the initial retardation. It follows from these observations, says the author, that a moderate quantity of alcohol, taken a short time previous to a meal, exercises a beneficial effect upon the digestion. Larger quantities obstruct the mechanical function of the stomach, and certainly retard digestion. —*Arch. f. Klin. Med.* and *Chem. Centralh*, No. 24.

◆

Castoria, according to the "*Deutsch Am. Apothek. Zeit.*," is a mixture of senna, pumpkin seed, anise, levant wormseed, Rochelle salt, sodium bicarbonate, sugar, oil gaultheria, oil peppermint, and water.

## RAPID ESTIMATION OF CHLORIDE OF LIME.

CHLORIDE of lime or any other compound containing available chlorine (such as hypochlorites, etc.) may be rapidly assayed in the following manner by means of Lunge's nitrometer (see next column).

Fill the tube *d* with mercury up to the mark 0, the three-way stop-cock *b* being turned so that communication is established with the outer air. Dissolve or mix 10 Gm. of the chloride of lime with water to make 250 C.c., and having rendered the mixture uniform by agitation, transfer 5 C.c. of it (corresponding to 0.2 Gm. of chloride of lime) to the little tube *f* in the flask *h*. Into the flask itself pour about 2 C.c. of commercial 10% peroxide of hydrogen. If the latter is not 10%, a larger amount must be added. In fact, it is absolutely necessary that it be in excess, but it is not necessary that its exact strength or quantity be determined, because only so much of it enters the reaction as is equivalent to the available chlorine. Then connect the flask *h* with the three-way stop-cock, and turn the latter so that it will communicate with the flask. Having made sure that the mercury still stands at 0, or having, if necessary, adjusted it at this point again, the tube *d* is lowered (both being clamped on an upright support not shown in the cut) to rarefy the air over the mercury. The flask is then grasped at the neck (care being taken that it be not warmed by the hand) and the two liquids caused to mingle by inclining the flask. Gas will then be given off which will depress the mercury. When no more is eliminated, the mercury in both legs is made to stand at the same level, and the degrees read off. If 0.2 Gm. of chloride of calcium was used, then each 1 C.c. of gas, corrected for 0° C. and 760 Mm. pressure, corresponds to 1.632 per cent, by weight, of available chlorine, that is, to "5 degrees French." If 7.917 Gm. of chloride of calcium were dissolved in 250 C.c. of water, and 5 C.c. of this used for each test, then each 1 C.c. of gas corresponds to 2 per cent of chlorine.

### Aniline Camphorate.

REFERRING to the fact that the recent discovery of antipyretic properties in acetanlide ("antifebrin") has opened up a possible future in therapeutics for another group of compounds, aniline derivatives and salts, Vulpius points out that a compound of aniline and camphoric acid had previously been credited by Tomaselli with antispasmodic properties. This salt does not usually figure in trade lists, but Hager, in his *Handbuch der pharmaceutischen Praxis* (vol. i., p. 364), states that it can be prepared by dissolving 50 parts of camphoric acid ($C_{10}H_{16}O_4$) in 150 parts of absolute alcohol, and adding to the solution 56 parts of aniline, or sufficient to produce a neutral liquid, which is then left to evaporate spontaneously in a dark place. The product so obtained is described as occurring in small white or reddish odorless prisms, having a pungent acrid taste and easily soluble in water, alcohol, and ether. This formula is objected to by Vulpius on the ground that excess of aniline is ordered, and that it is difficult to ascertain the exact point of neutralization with the ordinary indicators, paper stained with the violet coloring matter of dahlia petals, which is colored green by aniline, being the most convenient. Moreover, he considers the use of alcohol as unnecessary, and liable to lead to discoloration during the evaporation, even in the dark. He prefers to heat together in a closed vessel, at the temperature of a boiling water-bath, 100 parts of finely-powdered camphoric acid and 93 parts of aniline. The crystallization of the aniline camphorate is said to commence in a few minutes, but to take some time to complete, though its progress is accelerated by contact with a wide surface of the containing vessel. Aniline camphorate—$(C_6H_7N)_2.C_{10}H_{16}O_4$—thus prepared, is said to dissolve in alcohol and ether, but not freely in water, of which it requires about 30 parts, and in its solubilities generally it approximates to aniline rather than to camphoric acid. Chloroform and carbon bisulphide appear to break up the compound, taking up the aniline and leaving a residue of camphoric acid; heated fatty oils and oil of turpentine behave more or less similarly. Apart from the alcoholic and ethereal solutions, which are not adapted for hypodermic use, the best solvent for aniline camphorate is glycerin, which takes up one-tenth of its weight, and can then be diluted with an equal weight of water. The maximum single dose of aniline camphorate given by Tomaselli as an antispasmodic was 0.2 gramme, and the maximum quantity administered in one day 0.8 gramme, which was usually given dissolved in four volumes of ether or ether-alcohol, and inclosed in a gelatin capsule. —*Pharm. Journ.*

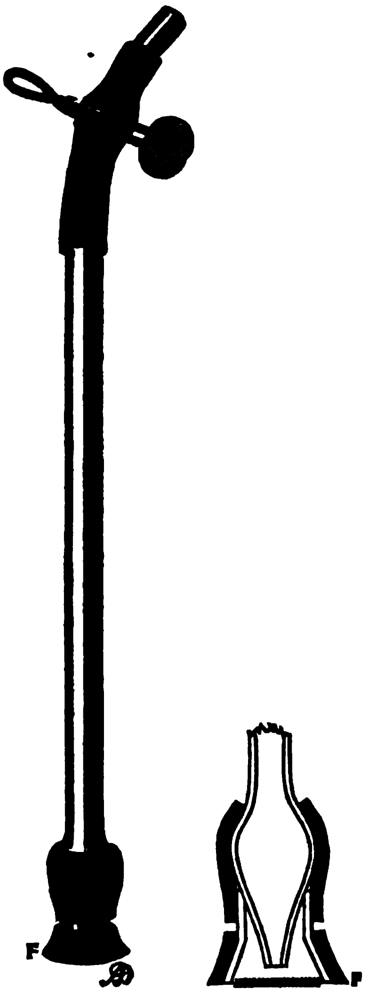
* * *

AN amusing yet instructive incident in the life of the cutter was related to us recently. It was a prominent druggist of this city, who offended his competitor by selling St. Jacob's oil at 40 cents per bottle. To get even, the latter gentleman advertised the oil at 25 cents. Druggist No. 1 had an eye to business, and gave each boy who entered the store a "quarter," and sent them for the oil. As a result, he stocked up at a low figure, and at his competitor's expense. We will leave the moral to be drawn by our readers.—*Western Druggist.*

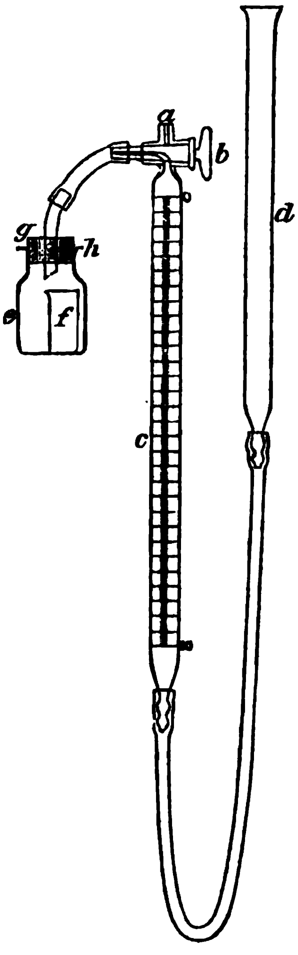
## MODIFIED FORM OF FILTER FOR USE WITH MAYER'S REAGENT.

A PIECE of glass tubing of about three-sixteenths in bore is heated and compressed near one end until its diameter is increased by about one-half; the enlarged portion is then drawn out to a point like a pipette. The other end is fitted with a piece of stout rubber tubing, a burette clamp, and a short glass tube to serve as a mouthpiece. One end of another piece of glass tubing is then enlarged to the shape of a small funnel, and cut off at about three-quarters of an inch from the enlarged end. A circle of the filtering medium, consisting of thick filtering paper placed between two pieces of fine muslin, is placed over the mouth of the funnel, turned down all round, and secured in position by slipping over the whole a piece of stout rubber tubing three-eighths of an inch in length. To the stem of the funnel another piece of rubber tubing is cemented, leaving about three-quarters of an inch projecting, and the pipette portion having been inserted into this the instrument is complete.

Before use, the filtering medium must be prepared by mixing a little finely powdered French chalk with water, and having immersed in the mixture the end (F) of the filter tube, sucking at the mouth-piece until the filtrate passes through perfectly clear. When, however, a liquid containing a Mayer's precipitate is being filtered, it will be found that considerable force is required to draw the liquor through, and the operation becomes very fatiguing. The clamp is intended to obviate this, for having sucked the air out of the tube as completely as possible, the clamp is closed, and the liquid gradually rises of its own accord into the vacuum existing inside the tube. The pipette may then be disconnected from the filter, and by compressing the rubber tubing between the finger and thumb at the point between the clamp and the top of the long glass tube, a drop of the clear filtrate may be forced out into a watch glass, and tested with a drop of Mayer's reagent; then by opening the clamp, the remainder of the liquid flows back into the bulk which is being estimated.



Filter for Mayer's reagent.



Lunge's nitrometer.

It is always advisable that the liquid filter into the pipette to the height of 2 or 3 inches, so that all traces of the preceding filtrate may be washed through, and a representative sample obtained.

The volumetric estimation of alkaloids by Mayer's reagent is generally a very tedious operation, owing to the large amount of time which is consumed in waiting for the finely-divided precipitates to subside, but by the use of the filter tube an analysis can be performed with comparative rapidity; and it is probable that in other estimations involving a similar difficulty, such as the titration of lead salts with oxalic acid, etc., this simple instrument would be found of service.—F. C. J. BIRD, *in Pharm. Jour. and Trans.*

### Olive Oil in Southern Europe.

In Italy about two and a quarter million acres of land are under olive cultivation, yielding, if the crop is good throughout the country, about eighty-nine and a half million gallons of oil, thus apportioned:

| | Gallons. | | Gallons. |
|---|---|---|---|
| Riviera to Massa Carrara | 9,100,000 | Neapolitan provinces on the Adriatic, exclusive of Bari. | 14,900,000 |
| Lombardy, Venetia, Emilia and the Marches | 2,200,000 | Neapolitan provinces on the Mediterranean | 16,800,000 |
| Tuscany | 7,500,000 | Sicily | 19,300,000 |
| Umbria and Latium. | 6,300,000 | Sardinia | 5,600,000 |
| Bari | 7,800,000 | | |

The Neapolitan provinces and Sicily, though yielding the largest crop, produce oil of low quality. The finer qualities of olive oil are produced in the districts of Bari, on the southeast shore of the Adriatic, Umbria, in Central Italy, Tuscany and Liguria, the latter including the districts of Genoa and Porto Maurizio—the Riviera, it is generally called.

In practice, a crop of 89,500,000 gallons is seldom obtained, and the following are the official returns of the production during the last seven years:

| | Gallons. | | Gallons. |
|---|---|---|---|
| 1880 | 86,000,000 | 1884 | 46,800,000 |
| 1881 | 34,600,000 | 1885 | 47,000,000 |
| 1882 | 56,800,000 | 1886 | 64,300,000 |
| 1883 | 41,300,000 | | |

An average of about fifty-four million gallons, of which about twenty millions are exported, mostly to France and England.

Spain, as an olive oil producing country, comes next in importance to Italy, though a long way behind; while the yield of France is very small as compared with Italy. The chief olive oil producing districts of France are Nice and Provence (Alpes-Maritimes, Bouches-du-Rhone, and Var); the produce of Provence being frequently called Aix oil. Oil from Nice resembles the produce of the adjacent district of the Riviera, and is superior to the oil of Provence or Aix, which latter is pressed chiefly from olives resembling the wild variety. The olive oils exported from France are mostly of Italian origin. France imports some five or six million gallons a year of Italian olive oil; her own production being small and quite inadequate to supply the home market. Although the chief demand in France is for oils of the districts of Bari and the Riviera, which are much cheaper than those of Tuscany, buyers are also in the habit of going from Aix to Tuscany every year to make purchases of oil of that region. It appears that the bulk of the olive oils exported from Bordeaux are derived from south-eastern France, and the country surrounding Genoa, and are respectively known as "huile d'Aix" and "huile de Nice."—*Chem. and Drugg.*

### Adulteration of Olive Oil.

In a report of the trade of Leghorn for the year 1886, Mr. Consul Inglis says:

"The exportation of adulterated oil, in what are commonly known as Florence flasks, continues, and has, indeed, received a fresh development. Whereas, formerly, the practice of certain firms was to put in these flasks the lowest quality of olive oil (not produced in Tuscany, but coming from other districts, such as the Romagna) mixed with cotton-seed oil, of late, the cotton-seed oil, pure and simple, has been sent, the cases being branded 'Olive oil' of superlative quality. But as cotton-seed oil is to be had cheaper in England than in Italy, things have culminated, logically enough, in exporting the empty flasks, packed in the usual cases, to London, there to be filled with cotton-seed oil, and, of course, palmed off upon the public as 'olive oil' of fine quality. The reason for this state of things is not far to seek. At one time, really pure and good olive oil was exported in these flasks, but over-competition and the beating down of prices by importers in England—who, be it said, care nothing about quality and insist only on low prices—led at first to inferior olive oil being substituted, and next to adulteration with cotton-seed oil, not to mention short measure in the flasks. Neither the flasks nor the cases in which they are packed have at any time borne the brand of the exporter, this not being allowed by the importers, as prejudicial to their particular interests; hence, it followed that the best firms in the Leghorn export trade have stood exactly on the same level with the English public as the firms who resort to the practice described above, both being alike unknown to the English consumer.

"The result is now apparent. The Florence flask trade—a specialty of Leghorn, these flasks not being procurable out of Tuscany—is utterly discredited, and has been totally abandoned by the leading firms engaged in the export trade in olive oil, who refuse to lend themselves to such discreditable practices. Therefore, persons buying oil in Florence flasks may know what to expect now.

"It is not an easy matter to get the genuine Lucca oil of fine quality in England; the demand is chiefly for cheap oil, the ignorance of the public being traded upon to a great extent. If the public wish to get Tuscan or Lucca oil, as it is generally termed, pure and of the best quality, they must look to the standing and reputation of the firm by whom the oil has been imported and bottled, and whose brand can be considered a sufficient guarantee, since, unfortunately, the leading firms in the export trade from Tuscany are unknown to the public in England. Failing these precautions, they will probably get rubbish."—*Pharmaceutical Journal.*

### Note on the Kola Nut.

The value of the kola nut, as a bearer of the waste-retarding properties of caffeine, has alredy been recognized, and it is no doubt destined to play an important rôle, as a remedial agent, in the future. It is, however, only of late years that its value has been appreciated by the medical profession. In its own home, in the tropical portions of Africa, it has been held in the highest esteem for centuries. We owe to several of the modern African explorers interesting accounts of the economic uses of the nut. One of the most detailed is that by the lamented Dr. Gustav Nachtigall, from whose work, "Saharâ und Sûdân" (Berlin, vol. I., 666) we abstract the following:

The Gûro-nut [or kola nut] is the seed-kernel of a *Sterculia* (mostly *Sterculia acuminata*), having the average size of a rather large horse-chestnut, and looking somewhat like it. Yet it is not enveloped, like the latter, by a detachable shell, but it appears as a homogeneous, hard mass, externally of a brown, and internally of a yellowish-white to rose-red color. It occurs in the western portion of northern tropical Africa from the Senegal to the Niger, and in the Binuë countries, and throughout the equatorial region. Its different varieties, however, are very differently estimated. Those which are alone esteemed in the Haussa districts and in Bornû come from the region of the Niger. It is said that the commercial exportation of the best quality which grows in Nîfe, and is known under the name labôdschi, is forbidden by the laws of the land under heavy penalty, the king alone having the right to give it away as a present. The kernels of the better kind consist of two halves, which are closely adherent. A criterion of their quality is this, that the inner surfaces of the two halves, as well as the interior, should have as pronounced a rose-red color as possible, and that they should have a faintly bitter, but no insipid mucilaginous taste, such as is exhibited by those which come from Adamâwa, south of Binuë, which have a yellowish-white color interiorly, and often may be naturally split into three portions. The inferior sorts also appear to contain a smaller quantity of the exciting and appetizing principle [chiefly caffeine] which has induced the Arabs to designate the gûro nut as *qahua es-Sûdân* or "Sudan Coffee."

I became rapidly so much accustomed to this stimulant, which never affected my organs of digestion or my nervous system injuriously, that I missed it more than coffee, tea, or tobacco, when it could not be obtained. It is true that, even in a cheap country like Bornû, its consumption is more expensive than that of coffee, as the custom of the country requires to hand to a visiting guest a whole, or at least half a gûro nut, just as a cup of coffee is placed before a guest in Arabic countries. But it takes many cups of coffee to equalize in value a gûro nut. Of the latter, 100 are usually purchased, which cost (in Bornû) according to their size, quality, and the state of the market, between 8 and 50 marks [about 2 to 12 dollars]. The large nuts, which have sometimes a diameter of 1¼ to 2 inches, are much better than the smaller ones, and are much more expensive in proportion. As the gûro nut is collected in immense quantities, it would cost much less, in spite of the long journey from its place of growth to Bornû, if its transport and treatment were not so difficult and uncertain. Not every one is able to travel beyond the Niger to Gondscha for the purpose of fetching gûro nuts. Such an undertaking requires great care and experience. This sensitive nut requires a certain amount of moisture and cool temperature, but cannot bear either an excess of water or dry heat. The merchants pack them in large baskets of dûm-mats (made from the leaves of the dûm palm), which are first padded with a thick layer of large, moistened leaves. On top of the nuts a similar layer is laid, and the whole package strongly bound in all directions with ropes. The larger the number of fruit, the less risk is there in transportation. If several thousand are packed together, it is sufficient, during the rainy season, to open the baskets every fortnight, to spread out the nuts to expose them for a short time to the fresh air, then to dampen them as well as the packing. If only a few hundred are packed together, this process must be repeated several times a week. During the hot season they are much liable to spoil. On opening the baskets, they must be carefully examined, so as to eliminate damaged ones, which might infect others. If they have only become flaccid, they may generally be again rendered hard and firm by placing them for a short time in water. But when they show whitish spots on their surface, the affected nuts must be thrown away. Sometimes they show yellowish-brown spots, and are then affected by a disease called *hille* (so called from *el-hinnâ*, used for dyeing), which renders the interior pale white and entirely tasteless, completely ruining the fruit. If the seeds are kept too damp the surface acquires dark spots and the interior becomes hard and insipid. This and still other diseases or stages of decay are distinguished by special names.

The correct treatment of the gûro nut is so difficult that the people, in their search after rational explanations of the frequent mishaps, seek them in supernatural influences.

Owing to the difficulty to preserve the sensitive fruit during its transport through the hot and dry air of the Great Desert, they seldom arrive in a fresh condition in the northern countries of Africa. In the Sûdân it is even used in a dry condition, but only by the poorest class of the population, who call it *kauda*.

For the people of Haussa and Bornû, the gûro nut has become even a more an indispensable article of consumption than coffee or tea for other people. Whenever a short crop, or warlike conditions in the neighborhood diminish the supply, this is considered a great calamity. Every sacrifice is made to obtain the favorite luxury, when it has been inaccessible for some time. A Kanûri, for instance, will sell his favorite horse or female slave for this purpose. A gift of gûro nuts is always regarded as a token of especial friendship.

### Analysis of Commercial Extracts of Beef and Bouillon Extracts.

The quality of an extract of beef may generally be determined from the amount of water, ash, and proportion of matters soluble in eighty-per-cent alcohol. It is particularly the relation of the ash to water and to the alcoholic extract which furnishes valuable points for the estimation of the amount of chloride of sodium added. And from the quantity of the alcoholic extract, compared with the percentage of ash and the dry residue, the presence of gelatin and other substances insoluble in alcohol may be determined.

The first four extracts quoted in the accompanying table resemble, in their general features, Liebig's extract. Cibils' Extractum Carnis, and probably also the Pastoril "Extract of Beef" have had chloride of sodium added to them. "Saladero Concordia," when compared with Liebig's extract, which it otherwise much resembles, contains a remarkably low proportion of salt. It is probable that the beef in this case is not as thoroughly extracted as it is in the case of Liebig's extract. A comparative determination of the degree of acidity showed Liebig's extract to contain 2.84% and the "Saladero Concordia" only 1.51% of lactic acid.

The last six preparations quoted in the table are liquid extracts, the composition of which has heretofore been but little known.

| | Name. | Water. | Ash. | Organ. Subst. | Nitrogen. | Sol. in Alcohol 80% | Chlorine in Ash. |
|---|---|---|---|---|---|---|---|
| 1 | Pastoril's Extract of Beef.... | 15.50 | 26.23 | 58.27 | . .. | 61.74 | ..... |
| 2 | Pisoni's " " .... | 17.74 | 19.68 | 62.58 | .... | 64.68 | ... . |
| 3 | Kemmerich's " " .... | 18.88 | 19.46 | 61.66 | .... | 59.06 | ..... |
| 4 | Cibils' Extractum Carnis .... | 19.41 | 26.44 | 54.15 | .... | 62.86 | 21.32 |
| 5 | Liebig's Ext. (Fray Bentos).. | 18.79 | 23.02 | 58.19 | 8 00 | 61.85 | 10.00 |
| 6 | Saladero Concordia.......... | 21.88 | 15.85 | 62.27 | 9.64 | 58.29 | ..... |
| 7 | Kemmerich's Beef Peptone.. | 34.27 | 7.71 | 58.02 | 9.36 | 28.40 | ..... |
| 8 | Cibils Hermanos do. (liquid). | 64.13 | 18.29 | 17.58 | 2.10 | 34.28 | 44.45 |
| 9 | Koch's Peptone Buillon...... | 59.58 | 15.88 | 24.54 | 3.69 | 32.78 | 43.19 |
| 10 | Kemmerich's Cond. Bouillon | 62.59 | 17.06 | 20.35 | 3.14 | 29.32 | 41.97 |
| 11 | Maggis Bouillon Extract.... | 68.64 | 23.80 | 7.56 | 1.29 | 25.79 | 57.23 |
| 12 | Morris, Canning & Co., Cond. Bouillon.......... ....... | 64.24 | 13.41 | 22.35 | .... | 29.87 | ..... |

Regarding the taste of these products, the author of the paper states, that when two teaspoonfuls of each were dissolved in 250 C.c. of hot water, Cibils' liquid extract (No. 8) had more nearly the specific taste of bouillon than any other; it also had an agreeable saline taste. Koch's Peptone Bouillon appeared to have an insipid taste, in spite of the added spices. Closely resembling Cibils' were Kemmerich's bouillon and Morris' concentrated bouillon, though the latter could stand a little more salt.

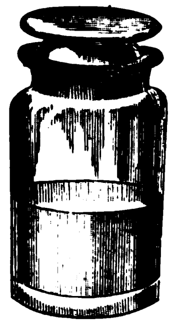
All of these solutions were rendered turbid by more or less flocculent matters and contained small granules or crystalline fragments of tribasic calcium phosphate, which dissolved only slowly in hot water. In Morris' preparations, quite large crystalline lumps were noticed. The solution prepared with Maggis' extract, on the other hand was almost clear; yet, as will be seen by the analysis, this is almost purely a solution of salt, while Cibils', Koch's, and Kemmerich's preparations (Nos. 8. 9, 10), certainly contain some true extract of beef. The real extract of beef may be determined from the nitrogen.

[The omission of the percentage of nitrogen in the case of the first four numbers of the table evidently is due, not to the absence of nitrogen from these preparations, but to the fact that the author did not specially determine it.—Ed. Am. Dr.]

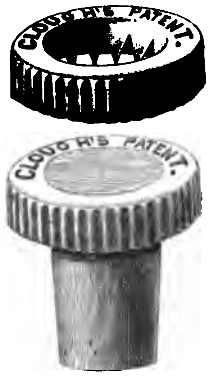
The author concludes with the remark that the old Liebig's extract is fully able to afford the advantages supposed to be inherent in the bouillon extracts.—Rudolf Sendtner in *Arch. f. Hygiene*, 1887, 253.

### NATURALIST'S BOTTLE.

An English firm advertises a "naturalist's bottle containing a material for killing insects without injuring their delicate organs" which will be a paying stock in localities where the small boy goes bug-hunting. The advertisement does not explain the nature of the poison, but it is well known among entomologists who have for a long time used similar bottles for killing and collecting their minute prizes. On to the bottom of a suitable bottle (which should be of a size to fit a coat-pocket) place a quantity of small fragments of cyanide of potassium; then pour in a mixture of plaster of Paris and water to a depth sufficient to hold the cyanide of potassium securely in place, and allow it to harden thoroughly. The plaster is sufficiently porous to allow the poisonous fumes to escape into the upper portion of the bottle which serves not only as a lethal chamber, but also for the storage of newly found specimens. In the illustration the layer of plaster is represented as unnecessarily deep.



Naturalist's bottle.


CLOUGH'S PATENT.
CLOUGH'S PATENT.

Clough's capsule and cork-screw.

### A CAPSULE AND CORKSCREW COMBINED.

A novel device, patented some time since, but only recently introduced to trade by the Clough Capsule Co., of 132 Nassau st., New York, is shown in the adjoining illustrations. The capsule consists of a round metal thimble, made to fit the outside or inside of any bottle, no matter of what size. It has little teeth which catch into the cork when it is pressed down and hold it tightly. The outside edge is corrugated so that the fingers will take hold readily. The *modus operandi* of using the capsule is quite simple. It is made to fit on top of the bottle and the cork is then driven down into it, level with the bottle. With a turn and a pull the capsuled cork readily comes out, the capsule thus acting as both cork-holder and cork-puller combined, and making unnecessary the use of any corkscrew or other device.

The advantage of the capsule to druggists for prescription bottles can readily be seen. As a rule, the corks of these bottles are only half put in, and are consequently frequently broken off when an attempt is made to get at their contents. By the use of the capsule this inconvenience to the customer is obviated.—*Amer. Stationer.*

### Diastase.

Chemists seem to experience considerable difficulty in arriving at an agreement respecting the nature of diastase, its claim to an albuminoid character being especially the subject of dispute. Mr. Hirschfeld has attempted to solve the problem (*Arch. f. gesammte Phys.*, XXXIX., 499) by examining a "pure diastase" prepared by macerating coarsely powdered malt with an equal weight of one-per-cent solution of neutral acetate of lead, afterwards diluting with an equal quantity of water, straining and precipitating the red-brown liquid with alcohol, and redissolving the precipitate in water at 50° C., cooling and again precipitating. The diastase so obtained is said to be very active, to contain no sugar or reducing substance, and to give no color with Millon's reagent. Considering these properties and the published analyses of Zulkowsky, according to which the nitrogen diminishes in proportion to the purity of the ferment, Mr. Hirscheld holds that diastase is a *carbo-hydrate*, a kind of gum, and that any nitrogen found in it has its origin in impurities. On the other hand, working with diastase obtained by treating malt with water and precipitating with alcohol, the precipitate being redissolved and reprecipitated several times, Mr. Lintner has arrived at diametrically opposite results (*Journ. f. prakt. Ch.*, XXXIV., 378). He found that the more pure and more active the diastase the more nitrogen it contained, but that the preparation never exceeded 10.42 per cent, and he therefore concludes that diastase is a proteid, probably an oxidation product of *albuminoid* matters.—*Pharm. Journ.*, May 28th.

A Label manufacturer of Edinburgh, Scotland, has invented a preparation which, when applied to paper, either in the process of finishing or afterward, renders indelible any writing which may be placed upon it.

THE

# American Druggist

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Regular Advertisements according to size, location, and time. Special rates on application.

## NEWS ITEMS.

Explosion of naphtha in a drug store in Antwerp, Holland, destroyed the building and buried ten persons in the ruins.

A fire originating among the chemicals in the photographic warehouse of E. & H. T. Anthony, in New York, on the 12th of July, caused a loss of about $100,000.

An explosion of chemicals in the photograph gallery of E. H. Jayne, in Spencer, Mass., on the 12th of July, destroyed about $10,000 worth of property.

Winthrop, Cunningham & Sons, of 45 South Front street, Philadelphia, having offices in New York and Tampico, Mex., made an assignment last month, owing to an attachment granted by the Supreme Court of New York in favor of Boehringer & Loehne, who claimed $10,350 upon a contract whereby the Philadelphia firm were to purchase 20,000 ounces of quinine.

The value of the patents upon processes used in the manufacture of paraffin paper is illustrated by a recent newspaper statement that Roscoe Conkling was paid $10,000 for his argument before Judge Gresham in a patent case trial in Chicago last month.

Naval apothecaries are signing a petition for increase of pay from $720 to $1,000 a year. The apothecary at the Mare Island Navy Yard is said to be the only one who receives the latter amount.

The Examining Board recently appointed by the Governor of Pennsylvania, has been organized as follows: president, Alonzo Robbins, of Philadelphia; secretary, Henry B. Cochran, of Lancaster; treasurer, Frederick H. Eggers, of Alleghany.

**Aschenbach & Miller**, Philadelphia druggists, have become defendants in suits for damages from sickness and deaths caused by chrome yellow sold by them to bakers for use in coloring buns.

**American Pharmaceutical Association.**—The local committee of the A. P. A. meeting, to be held in Cincinnati September 5th, has made arrangements with the local passenger agents by which any delegate or visitor to the A. P. A. coming on roads centering in Cincinnati will receive a reduction of two-thirds of the return fare, upon presentation of a certificate from the agent selling him the ticket to Cincinnati that he paid the full fare, the certificate to be accompanied by a statement from the secretary of the Association certifying that he attended the meeting.

Persons residing in the Northeast will please confer with Mr. J. W. Colcord, of Lynn, Mass., who has kindly attended to obtaining reduced rates from Boston. Persons can go from that city for about the same price as from New York, being a reduction of four dollars. A party of twenty-five can have a special Pullman car through without change.

Persons desirous of going from New York will please address Mr. T. J. Macmahan, New York City.

The headquarters of the Association will be at the Grand Hotel, where rooms may be obtained for $3.00 per diem. The committee has made arrangements with other hotels, and accommodations may be had at from $1.50 to $4.00 per day. A blank slip will be mailed to members of the Association, and rooms secured by the local secretary upon its return.

The following are the rates: Gibson House, $3.00; Burnet House, $3.00; Palace Hotel, $2.00 to $2.50; St. James Hotel, $2.00; Dennison Hotel, $2.00, European plan; St. Nicholas, $1.50 or more; Hotel Emery, $1.00.

The programme of entertainment has been already published.

No exhibit will be had, as the committee was unable to obtain exhibits enough to make it a success.

The following are the terms for excursions to the various points of interest near Cincinnati: Mammoth Cave: leave Cincinnati 8:15 A. M., arrive 5:30 P. M. Leave 8 P. M., arrive 5:20 A. M. Fare for round trip, $13.75; 25 or more, $7.85; hotel bill, $3.00 per day. To a party the hotel and cave expenses will be reduced. Cave expenses short route, 8 miles, $2.00; long route, 18 miles, $3.00. Persons leaving Cincinnati in the morning can take the short route same evening, and the long route the following day.

To High Bridge on the Cincinnati Southern R. R.; single fare, round trip, $5.00. Five or more, $3.00; five or more on Sundays, $2.00.

Findlay Karg gas well, capacity over fourteen million cubic feet per diem, and a number of other wells, over eight million. To parties of 10 or more, one fare for round trip.

Dayton Soldiers' Home; parties of 10 or more, $2.50 for round trip.

Geo. W. Voss,
*Local Sec'y A. P. A.*

Thirty-fifth Annual Meeting, to be held in Cincinnati, Ohio, commencing Monday, September 5th, 1887, at 3 o'clock P.M.

As the chairman of the Committee on *Papers and Queries* contemplates being absent in Europe, the undersigned will act in his stead.

It is very desirable to have all papers intended to be read at the meetings of the A. P. A. printed beforehand, in order that copies may be in the hands of those in attendance whilst the papers are being read. Contributors will therefore please forward their papers to the undersigned at the earliest date possible.

All papers should be in the hands of the committee at least ten days before the meeting of the Association.

Emlen Painter.

S. W. corner Broadway and 84th Street,
New York.

**The Executive Committee of the National Wholesale Druggists' Association** (which meets in Boston on August 23d) announce that they have arranged with the Hotel Vendome and the Hotel Brunswick for board at $4.00 per day, which is $1.00 less than their regular rates. Situated between the two hotels is the Hotel Victoria (recently built), and under the same management as the Vendome and the Brunswick. It is kept on the European plan, and the prices for rooms *without bath* are $1.50 to $3.00 per day when occupied by one person, and $2.00 to $4.00 per day for two persons. Rooms *with bath* are $1.00 extra. The hotels are first-class in every particular, and are located near together, in the pleasantest part of the city, and among the finer residences. Applications for rooms can be made to the hotels direct, or to Mr. Solomon Carter, chairman of the reception committee, 356 Washington Street, Boston. The executive committee will make their headquarters at the Vendome, and all business meetings of the Association will be held there.

**The Alumni of the Cincinnati College of Pharmacy** held its first quarterly meeting June 16th, 1887, and was well attended.

The Committee on Queries reported a list of twelve queries, of which ten were accepted to be answered at the next quarterly meeting. The list is to be printed and sent to different members not present to solicit papers in answer to queries in addition to those accepted.

The Amusement Committee reported that they had arranged for a basket Pic-nic, to be held at Coney Island, Ohio, on the 23d of June. As the committee expressed some doubt as to being able to obtain a sufficient number of excursionists to receive a rebate from the steamboat company, a sufficient number of tickets was subscribed for by the individual members present to guarantee the committee free from expenses, thereby insuring success.

The Publishing Committee reported verbally that it was necessary for the projectors of the Journal to become incorporated, and to issue stock of twenty dollars a share, payable in 25% instalments. The committee was given time until the next quarterly meeting to finish its report.

On the 23d of June, a large number of the Alumni and their families assembled at Coney Island to enjoy a holiday. Foot-ball and base-ball were indulged in, and at the end of the game, Professor Fennel, who had taken his photographic apparatus with him, took a picture of the two nines in a group. Resp'y,

ALBERT WETTERSTROEM,
*Cor. Sec'y Alumni C. C. P.*

**Rhode Island.**—E. C. Danforth was elected Chairman of the Executive Committee of the Rhode Island Pharmaceutical Association, at the quarterly meeting, held July 13th.

**Ohio.**—The State Pharmaceutical Association met in Akron on the 8th, 9th, and 10th of June, the sessions being held in the council chamber of the City Hall, and the exhibition in Alyffe Hall. Virgil Coblentz, of Springfield, presided and delivered an opening address, followed by reports by the secretary, Lewis C. Hopp, of Cleveland, and the treasurer, Chas. Huston, of Columbus. The latter specified the receipt of $1,009.34, expenditures amounting to $883.44, and a balance of $125.90. Reports were made by the following-named standing committees: executive, trade interests, papers and queries, legislation, and pharmacy board. The following is an abstract of the latter:

During the year ending April 1st, 1887, the board held six meetings for the examination of applicants for registration as follows: Columbus, May 10th, 1886; Toledo, August 3d, 1886; Cleveland, October 12th, 1886; Columbus, November 23d, 1886; Cincinnati, January 10th, 1887; Columbus, March 1st, 1887. At these examinations 225 appeared to register as pharmacists, and 136 as assistant pharmacists. Of these applicants, 102 received certificates of competency as pharmacists and 48 as assistant pharmacists, being 46 per cent of the former and 35½ per cent of the latter. Your attention has heretofore been called to the small percentage of successful applicants at these examinations, and the marked decrease in the ratio during the past year is no flattering comment upon the training and education of these aspirants, when you consider that the aim has been to make the test a practical rather than a theoretical one. There must be a radical change in the views of the druggists of Ohio concerning the kind of material out of which they assist in manufacturing the pharmacists of the future. The majority of the examination papers, even of those which show a fair degree of proficiency in pharmaceutical skill, exhibit a lamentable ignorance of the elementary principles of a common school education. The idea appears to be, not "how high a degree of excellence can I attain in this my chosen line of work, but how little can I know to squeeze through the examinations of the board of pharmacy, and get a certificate to practise upon the people."

The receipts and expenditures for the year ending April 1st, 1887, are shown by Secretary Nipgen to have been as follows: cash on hand April 1st, 1886, $6,128.67, cash on hand April 1st, 1887, $402. Total, $6,530.67. Expenditures, for various items, which are set forth in the report in detail, $1,905.87, leaving a balance on hand of $4,624.80.

The Executive Committee reported the addition of 81 new members at the last meeting and the death of 7 members: Edward C. Kistner, Cincinnati; John F. Uthe, North Amherst; August Wagner, Cincinnati; Silas J. Nicolay, Hamilton; Emil Bexel, Cleveland; H. F. Reum, Cincinnati; P. F. Sterrick, Deltos.

The committee on trade interest reported that the past year has not been an eventful one to the drug trade. Cutting in prices has been found to be unremunerative to those who hoped by that means to capture their neighbors' patrons and has been entirely abandoned throughout the State. The beneficial effects of the Pharmacy law are being felt and as it becomes better understood and its provisions more fully enforced, we think it will prove as great an advantage to the trade as was expected by its friends.

"The liquor law, known as the Dow Law, in its bearings on the drug trade, has been the cause of some difficulty. Liquors used medicinally are a part of the druggists' business; and while your committee have no sympathy for those who turn their pharmacy into saloons, we think the restriction on its sale as medicine should not be limited to the prescription of a physician. The inconvenience is felt more severely in our small towns than in the cities, as many physicians are not in the habit of writing their prescriptions, simply telling their patients to send to the apothecaries for such remedies as they do not carry with them. And neither do many of our patrons think of applying to a physician for liquor any more than they do for camphor, peppermint or paregoric. The writer has been compelled more than once to send a customer to a neighboring saloon for liquor, when he had been directed by his physician to go to the drug store for it, but failed to give his written order. Your committee are aware that it is a difficult subject to handle, but do not think it was the intention of our legislators to do any one an injustice and think the law might be so amended as to allow the druggist to be the judge of its legitimate use either by requesting the name of the buyer to be registered as in the purchase of poison or the customer to sign a certificate that it is not to be used as a beverage.

"The absence of speculation and the unusual steadiness of prices have enabled druggists to make a fair and legitimate profit, and the dulness of the trade in the earlier portion of the year has been succeeded by a decided increase in the volume of sales in all branches of the business, so that your committee think that the year has been a satisfactory one to the trade in general."

The report of the committe on papers and queries was to the effect that the replies to the queries printed in the annual proceedings had not been so numerous as they were the two previous years, but the quality of work had been of unusual excellence and in this respect the committee felt well repaid for its labor.

The committe on legislation reported no antagonism to the present law and recommended the enactment of a law exempting pharmacists from jury duty.

The following-named officers and committees were chosen: president, S. E. Allen, Akron; vice-presidents, M. D. Fulton, Bucyrus; Geo. W. Voss, Cincinnati; secretary, Lewis C. Hopp, Cleveland; treasurer, Chas. Huston, Columbus; exec. com., Theo. F. Troupe (chairman), Springfield; C. F. Inman, Akron; C. P. Rendigs, Cincinnati; local secretary, H. C. Cook. To fill a vacancy on the State board of pharmacy, the following nominations were made to the governor: John A. Nipgen, Chillicothe; G. L. Hechler, Cleveland; M. D. Fulton, Bucyrus; C. N. Nye, Canton; Philip Lehr, Cleveland.

Over seventy new members were acquired.

The next meeting will be at Columbus on the second Tuesday in June next.

The treasurer was instructed to make an arrangement with some Columbus bank for the collection of unpaid dues.

The constitution was amended to permit the acquisition of life-membership on the payment of ten dollars.

The secretary was instructed to attend the annual convention of secretaries of State associations, which is coincident with the meeting of the American Pharmaceutical Association.

The following papers were read: "Sulphate of Morphine" by P. J. Spenzer, of Cleveland; "What is the general Quality of the Pressed Drugs of the Market" by Joseph Feil, of Cleveland; "The Hand-writing on the Wall" by J. U. Lloyd, of Cincinnati; "Formula for Solution of Ferrous Citrate yielding 6.52 per cent of Ferric Oxide" by Chas. Fennel, of Cincinnati; "Degree of Adulteration of commercial Black Oxide of Manganese" by S. W. McKeown, of Youngstown; "Proportion of Resin in commercial entire and powdered Jalap" by E. H. W. Stohlhuth, of Cincinnati. "Is the powdered Opium sold in Bulk up to pharmacopœial Requirements?"

In the course of his address, the president remarked that the present membership is 910.

**Michigan.**—The State Board of Pharmacy held an examination at Detroit on the 5th and 6th of July. The board consists of Ottmar Eberbach, of Ann Arbor, president; James Vernor, of Detroit, treasurer; Jacob Jesson, of Muskegon, secretary; Stanley E. Parkill, of Owosso, and George McDonald, of Kalamazoo.

Fifty-one out of seventy-one candidates were successful.

**The School of Pharmacy of the University of Michigan** held its nineteenth annual commencement, in connection with the semi-centennial celebration of the University, on June 29th and 30th.

The meeting of the Alumni took place in the lecture room of the chemical laboratory, and was very successful. A committee was appointed to select and obtain a suitable memorial for the late Henry B. Parsons. The following officers were elected for the ensuing year: president, Prof. A. B. Stevens, of Ann Arbor; secretary, T. A. Reyer, of Detroit; treasurer, A. C. Schumacher, of Ann Arbor. The society then adjourned to a sumptuous banquet.

After the banquet, Mr. F. F. Prentice, class of '72, and ex-president of the Wisconsin State Pharmaceutical Association, delivered an interesting address on the growth of the college and its relation to higher state education.

Thirty graduates were awarded the diploma of Pharmaceutical Chemist.

**THE** annual meeting of the Michigan Pharmaceutical Association, held at Petosky, on the 12th and 13th of July, was well attended and listened to papers by Prof. Prescott, on "What Disinfectants and Antiseptic Preparations can the Dispensing Pharmacists make with Advantage?" and "Which are the more uniform in Strength, Preparations made by Weight or Measure?" by Ottmar Eberbach. "Is an Apprentice in a Drugstore entitled to receive instructions in Practical Pharmacy from his Employer, and to what extent is the latter held to grant a reasonable time for daily study?" by H. M. Snow. "The alkaloidal Strength of Ipecac Root and Fluid-extract;" by Mr. R. L. Stowell. "What practical Use can the Druggist make of the Microscope, and what is the cost of such an instrument as will serve his purposes?"

The following officers and committees were chosen: president, A. Bassett, of Detroit; vice-presidents, G. M. Harwood, of Petosky, H. B. Fairchild, of Grand Rapids, H. Kiphart, of Berrien Springs; secretary, S. E. Parkhill, of Onana; treasurer, W. Dupont, of Detroit; local secretary, J. Vernor, of Detroit. The association has 778 members and has its next meeting in Detroit on the second Tuesday of October, 1888.

## CORRESPONDENCE.

### Distinction between Oils of Erigeron and of Fireweed.

We are in receipt of a communication from our friend, Mr. Albert M. Todd, of Nottawa, St. Joseph County, Michigan, in which he informs us that Prof. Flückiger has just notified him of the discovery, in oil of erigeron, of a constituent which permits this oil to be sharply distinguished from oil of fireweed (*Erechthites hieracifolia*). The material for the researches carried on by Prof. Flückiger had been supplied by Mr. Todd, who is himself making valuable contributions to our knowledge of various essential oils, having, as is well known, special facilities for growing the plants and distilling the oils on a large scale. Prof. Flückiger writes:

"As to oil of erigeron, I have prepared from it a fine crystallized compound, which I have named *limonen tetra-bromide*, $C_{10}H_{16}Br_4$, by diluting one part of the oil with ten parts of glacial acetic acid, and slowly adding bromine until, in the cold, crystals of the tetrabromide begin to appear. Sometimes several weeks are necessary to arrive at the formation of the bromide in the shape of crystals. They may be collected and recrystallized from warm acetic ether. Now, as to the oil of Erechthites (fireweed), as sent by your kindness, a similar compound could not be obtained from it."

### Pharmaceutical Legislation in Louisiana.

*To the Ed. Am. Druggist.*

I am obliged, as a country druggist, to correct the error your informant committed, when he told you that the opposition to the enactment of a pharmacy law in this State came largely from the country pharmacists. The opposition did come from the country store-keepers, who sell all kinds of drugs and medicines, without employing a competent person to do so. And those country store-keepers yield and possess a big influence on the members of the legislature.

It is nevertheless the fact that the country druggists, whom the law would most benefit, have displayed very little, if any, interest in its passage. Very few of them attend the annual meetings of the State Association. The city members have become somewhat disgusted and do not see the necessity of their keeping up a local and State Association. They derive all the benefits of an association from a city society, which holds monthly meetings.

I remain, yours, Jos. T. Thibodeaux.

Thibodeaux, La., June 24th, 1887.

### Pills in Shells.

A correspondent sends us the following:

After reading the item on page 63 of the June number, "Didn't want the pills in shells," I was reminded of a case I had some few months ago. The customer was an oldish lady who had worked herself all out on a farm, situated about a mile out, and she is one of the "fussy" kind. She came into my store just after I returned from dinner with a prescription as follows:

℞ Salicine.......... .... ....... . ..........gr. xxiv.
Pv. Cinchona Rub........................ . .gr. xij.
M. Put into capsules No. 24. Sig. One before meals.

I prepared the medicine according to orders. The lady paid and went home. About five o'clock she came in all out of "wind," and asked where Dr. —— was. I informed her that he had gone out of town and wouldn't be back for several hours. "Oh, dear, what shall I do? I must see him at once!" I asked her what the trouble was, if any one was hurt? "Why," said she, "I have swallowed one of those little *glass boxes* you put my medicine up in, and I am afraid it will kill me, and what *shall* I do? The doctor said he would have it fixed so I wouldn't taste it, and I thought it was pills, and so I took one and after I swallowed it, I picked up another one and as soon as I pinched it a little in my fingers it *all flew* to pieces, and then I found out it *was glass*. Now, why didn't you tell me to turn the medicine out of those glass boxes before taking it? But you didn't, and as I can't see very well, I have swallowed the glass and all, and you don't know how my stomach feels, it will surely kill me. Oh, what shall I do, and can't you give me something? Oh, dear, how my stomach burns and aches! You ought to be put in jail for giving people medicine in little glass boxes and calling them pills. Did you make a mistake, or did you try to kill me? Oh, dear! Give me something, quick, or I shall faint." I finally got her quiet, after hearing such talk as this for half an hour, and then I was able to explain what those little glass boxes were for and what they were made of, but finally had to dissolve one to satisfy the old lady that there was no glass about them at all, and that she would not die, and that there was no harm done, etc. She replied that those were the funniest things she ever saw, and upon that she went home, feeling better. Since that time I have explained to every old lady that wanted capsules what capsules were made of, etc., before letting them go out.

### Iodoform and Nitrate of Silver Caustic.

Houston, Tex., June 6th, 1887.

Ed. Amer. Druggist:—Lately I have noticed an item copied from *Les Nouveaux Remèdes* that Dr. Malthe used iodoform and nit. silver cauterizing ulcers, combining the two. I have used this process on venereal ulcers for a year past, but did not think it worthy of publication; however, it being brought forward, I will say I first thickly sprinkle the ulcer with iodoform, then moistening a point of lunar caustic very thoroughly, plunge it suddenly into the iodoform and press firmly into the ulcer; a sudden violent effervesence occurs, almost painless and very thorough in its effects.

I would call the attention of the medical fraternity to the efficient action of hyoscyamus and bromide of potash in acute dysentery. Combining 8 to 10 drops of fl. ext. hyoscyamus with one drachm of bromide potassium given every four hours, I have apparently suppressed the disease at once, and cured the attack in three doses. Also have found the best of good results in dysentery and other inflammatory affections of the bowels from the following repeated every four hours.

℞ Ext. Hyoscyami Fl.,
Ext. Ipecacuanhæ Fl....................... ....āā gtts. x.
Potass. Brom.................. ................ . ʒi.
Ess. Cinnam.,
Syrupi,
Aquæ....... ..............................āā q. s.

Sig. Take at one dose,
Three doses a cure generally.

Respectfully,
J. S. Wilson, M.D.

### An Ethical Question.

*Editor of American Druggist:*

Dear Sir:—Through the columns of your valuable paper, I would like information on the following points:

1. Is a physician justified in giving a name to a mixture and prescribing it under that name, providing he does so simply as a matter of convenience and is willing to give the formula to any druggist desiring it?

2. Was the druggist justified in the following? Wrote a prescription:

℞ Tannin Gargle .... .... ................ ... ... ℥ ij.

Sig. Tablespoonful to half pint water for gargle, intending to have a mixture of tannin, glycerin, and carbolic acid. On my next visit, found the druggist had dispensed simply a solution of tannin in water; told the patient it was not what I had intended, to take it back to the druggist, and I would call at his store and explain. Not finding the druggist in, I was unable to see him until after the prescription had been returned, when, after making some very uncomplimentary remarks about the physician who wrote "blind prescriptions for the purpose of compelling patients to trade at a certain store," he made some slight change and sent the bottle back, still being ignorant of what I had intended. When I wrote the prescription I knew nothing of where it was going.

In closing, I will state that I have been accused by the druggist in question of influencing my patients to take their prescriptions to another store, but with no foundation or truth, although I had bought most of my drugs elsewhere, claiming the right of any citizen to buy where goods are best and cheapest. This same druggist has had similar trouble with four out of the five physicians who have practised here in the last five years.

Yours respectfully.

*First.*—No! When a physician writes a prescription, it should specify exactly what he wants his patient to have, and, we may add, he should also write it so that it can be read, and not oblige the apothecary to decipher it as if it were a puzzle.

Accepting the writer's statement that he had no intention of obliging his patron to take the prescription to a particular store, we are disposed to put the word *indolence* in the place of "convenience," and put it in Italics, too.

*Second.*—No! An apothecary has no business to guess at the probable ingredients of any prescription, and it is a matter of choice and expediency whether he declines to put it up or spends time and labor in finding the doctor and getting more explicit instructions.

There are only three explanations for such a prescription as the one above mentioned; the one suggested by the correspondent, laziness, or ignorance, and the statement that "this same druggist has had similar trouble with four out of five of the physicians who have practised here in the last five years" favors the idea that the druggist must have had a run of pretty bad luck with his local practitioners, and that he has pretty good justification for some ill-temper.

* * *

**The National Retail Druggists' Association** is to hold its last meeting in Cincinnati on the 5th of September: certain changes to be made this year in the order of business of the American Pharmaceutical Association will render the separate organization unnecessary.

## QUERIES & ANSWERS.

*Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer, for the information of the editor, but not for publication.*

No. 1,963.—**Blast and Blow-Pipe Lamp** (R.),

As a supplement to Query 1,933, in which we were asked to mention the inventor and manufacturer of the blow-pipe illustrated and described on page 45 of our March number, we would state that the inventor's name is Busch, and that it is manufactured for sale by Koch & Co., of Elberfeld, Germany.

No. 1,964.—**Blackboard Paint** (Eduard).

A recent formula, given by several of our exchanges, reads as follows:

| | |
|---|---|
| Shellac | 4 oz. |
| Ivory Black | 2 " |
| Emery (in fine powder) | 1 " |
| Ultramarine Blue | 1 " |
| Methylated Spirit | 1 qt. |

Mix the whole, and agitate occasionally until the shellac is dissolved.

In place of "methylated spirit," which is a commodity of English commerce only, ordinary alcohol may, of course, be used.

No. 1,965.—**Valangin's Solution** (F. O. R.).

This is a solution of arsenious acid in water containing a very little hydrochloric acid. It is also called *Valangin's Mineral Solvent*. The formula is:

| | | |
|---|---|---|
| Arsenious Acid, powd | 0.1 Gm. | 1½ grains. |
| Hydrochloric Acid | 2 drops. | 2 drops. |
| Distilled Water | 33 Gm. | 510 grains. |

Dissolve by digestion.

Average dose 3 to 10 drops ($\frac{1}{33}$ to $\frac{1}{11}$ grains of arsenious acid) three times daily.

Several of the questions contained in this correspondent's letter cannot be answered here, as they will either have to be referred to a lawyer or are not capable of a satisfactory and *brief* answer.

No. 1,966.—**Albolene** ("Ana").

We have already before mentioned this substance, but will give a somewhat more detailed account of it here.

*Albolene* is a name given to a petroleum ointment or petrolatum, prepared from a peculiar species of petroleum, which is absolutely odorless, tasteless and, when liquified colorless. In its natural condition, at the ordinary temperature of our climate, it has a whitish, semi-translucent appearance, and the consistence of vaseline. It melts between 110° and 130° F. It is unquestionably the purest and most elegant of all petroleum ointments ever produced, its want of specific color making it particularly valuable for many medicinal ointments, and especially for toilet preparations. In price, it compares favorably with the ordinary yellowish petroleum ointments of the market, being but little higher than the latter.

No. 1,967.—**Argan Oil.**

This oil is obtained by expression of the fruit-kernels of the Argan tree (*Argania Sideroxylon*, or *Sideroxylum spinosum* L., nat. ord. *Sapotaceæ*) growing only in the south-western provinces of Morocco to the south of the river Tensift. It resembles the olive tree in appearance, but its leaves are somewhat darker and the fruits lighter colored and larger than those of the olive. The stem and the wood are entirely different from the latter. The bark is almost smooth and uniform throughout; the wood is darker and harder than olive wood and is highly esteemed for its resistance to decay. The tree grows upon sandy soil and attains a very old age. The chief value of the tree resides in the fixed oil, which is used throughout the country and is also exported in considerable quantities. The natives use it, among other purposes, for food or for cooking, but Europeans do not take kindly to it. When it is properly purified, however, it is equal to the best olive oil.

No. 1,968.—**Velpeau's Injection** (P. R. Mc.).

The following is quoted by Hager and other authorities as the composition of

*Enema Balsamicum*,
or *Lavement de Copahu.*

| | | |
|---|---|---|
| Copaiba | 20 Gm. | 300 grains |
| Yolk of Egg | *one.* | |
| Infusion of Mallow Flowers | 500 Gm. | 16 fl. oz. |
| Tincture of Opium | 2 Gm. | 30 ♏. |

Dorvault, on the authority of Soubeiran, gives the following composition:

Copaiba, 30 Gm.; Tincture of Opium, 1 Gm.; Yolk of Egg, *one;* Water, 250 Gm.

Which of these corresponds to the article mentioned by our correspondent we are unable to say. At all events, the difference is not very material. By the way, infusion of mallow flowers is officinal in the French Pharmacopœia, and is to be prepared by infusing 1 part of mallow flowers with 100 parts of boiling water.

No. 1,969.—**Artificial Quinine** (D. W. A.).

We have never seen a sample of Dr. Hewett's artificial quinine, and believe that we never shall. From the very first we had no faith in the claims and statements made by this person, for, so far as we could judge from the published facts, there never appears to have been any one who saw or obtained more than an insignificant sample of the article, and some of these samples, on analysis, turned out to contain the identical contaminations found in natural commercial quinine made from the bark. The discoverer will have to produce much more convincing proofs of his invention than he has done so far before we shall even begin to believe in his assertions.

The *British and Colonial Druggist* recently dispatched a special agent to Belgium, where Dr. Hewett claimed he had established a factory. This agent, however, according to the journal quoted, could not find any person in the very place where the factory was pretended to be located who had any knowledge of its existence, though he did find a person with whom Dr. Hewett had negotiated without success. We cannot, of course, say whether the agent was unsuccessful only through want of detective ability. We merely state the facts as related by our cotemporary.

No. 1,970.—**Lister's Carbolic Paste** (N. K. M.).

This correspondent asks us for the formula of *Liston's Carbolic Paste*. We have had the query upon our desk some time, as we desired to make inquiries about the matter, though we had a suspicion in the beginning that some of Prof. Lister's preparations is intended. We are now quite convinced that this is the case. The formula which our correspondent is probably in search of is the following:

| | |
|---|---|
| Carbolic Acid, pure | 5 parts. |
| Linseed Oil | 20 " |
| Prepared Chalk | q. s. |

Mix them so as to form a mass of the consistence of a soft ointment.

Recent authorities have modified the proportions and constituents somewhat. Dieterich, for instance, has the following:

| | | |
|---|---|---|
| 1. | Carbolic Acid | 50 parts. |
| | Linseed Oil | 350 " |
| | Precip. Carbonate Calcium | 600 " |
| 2. | Carbolic Acid | 50 parts. |
| | Olive Oil | 450 " |
| | Wheat Starch | 500 " |

No. 1,971.—**Silver, Silver Nitrate and Chloride, etc.** (F. O. R.).

1. *Filter to be used in filtering off silver chloride.* The querist states that his filters break. If he precipitates a watery solution of nitrate of silver with hydrochloric acid, and there is not water enough to properly dilute the nitric acid separated, then, of course, the filter is apt to break. The solution should be diluted to a very large extent. Or, the silver salt should be decomposed by a solution of chloride of sodium or better, of chloride of ammonium. If either of these salts are used, however, it is advisable to add a very small quantity of nitric acid, so as to have the liquid acidulous. The chloride of silver will then separate much more easily, especially on shaking or brisk stirring.

2. *Fineness of U. S. silver coin.*—U. S. silver coin is nine-tenths fine, that is 1,000 parts of coin contain 900 parts of pure silver, with an allowed variation of 3 parts either way. The other 100 parts consist of copper, and very minute traces of gold or other metals. A silver dollar weighing 412½ grains should yield, when converted into chloride of silver, 531.2 of the latter, namely: 412.4 grains of coin, containing 90 per cent pure silver, represent 371.25 grains of this metal. When this is converted into chloride—taking the molecular weights 107.7 for silver, and 35.4 for chlorine—the result will be 531.25875 grains of $AgCl$. The exact amount of *pure* chloride of sodium necessary to precipitate the nitrate of silver produced from the above-mentioned coin would be 201.3 grains. ($AgNO_3$, 169.7 parts [containing 107.7 parts of silver] require for complete precipitation $NaCl$ 58.4 parts.)

No. 1,972.—**Basis for Suppositories** (R. O.).

"What is a good substitute for Cacao Butter for making suppositories? Would a combination of petrolatum, wax, and paraffin do?"

In our judgment, there is no better basis than Butter of Cacao, owing to the readiness with which it melts when introduced into the rectum. If it is desired to have it melt less rapidly, a little wax can be combined with it.

The next best basis, we believe, is a combination of gelatin and glycerin, regarding which we refer you to our June number, page 112, where you will find full information. Sometimes powdered or grated Castile soap, mixed with glycerin or honey, or other bland liquids, or curd soap (animal soap), with starch, or starch and glycerite of starch, or suet, etc., etc., will form a good basis, but they should not be used promiscuously. Soap, for instance, should only be used in the case of suppositories intended to have a laxative effect.

As to petrolatum and paraffin, we have never tried the combination for suppositories, and would say that theory appears to speak against them, from the fact that while mucous membranes have an affinity for aqueous or other liquids which can "wet" them, that is, such as are not repelled by their moist surface, and while they can even form an affinity for fatty substances which are saponifiable, such as fixed oils, it is pretty well known that mineral hydrocarbons, to which class petrolatum and paraffins belong, are repelled by it energetically. It is quite probable that an active remedy mixed with such a base would not be able to exert its full benefit. However, this is only speculation, and needs confirmation by experiment. You might interest some physician engaged in hospital practice to make comparative trials.

No. 1,973.—**Darkening of Solutions of Salicylates** (E. O.).

It is well known that solutions of salicylates will gradually darken under certain circumstances. What the precise nature of the change of color is has not been completely determined, though it is likely to be of a similar nature as the dark-colored tarry substance which may be separated from commercial salicylic acid by subjecting it to sublimation. It is known that the darkening of such solutions depends greatly upon their degree of alkalinity. Even a neutral solution will gradually darken; and the more alkaline a solution is, the more rapid will be the change of color. If the solution is acid, however, either by an excess of salicylic or certain other acids, the dark color does not make its appearance at all, or but very faintly and slowly. All solutions of salicylates do not behave alike. A solution of salicylate of lithium, if alkaline, darkens more rapidly than one of salicylate of sodium of corresponding alkalinity (at least such has been our observation). The change takes place also in the dark, though more slowly.

If the salicylate is prepared extempore, by dissolving the caustic or carbonated alkali in a solution of salicylic acid, the darkening may be almost entirely prevented, or at least greatly retarded, by adding the alkali cautiously *to* the salicylic solution, but not *vice versa*. In this way, there will always be salicylic acid present in excess, while the slightest excess of alkali will at any time promote the darkening. For this reason, also, the solution of the alkali should be added in a thin stream, under constant stirring, so that there may not be at any time a notable portion of the solution temporarily rendered decidedly alkaline.

The darkening of solutions of alkali salicylates may be prevented by adding to them a little hyposulphite of sodium, about two drachms to the pint.

This addition is perfectly innocuous and unobjectionable, and as it accomplishes its purpose, viz., the decomposition of the salicylate, we have no hesitation in advising its employment.

No. 1,974.—**Mistura Apii Graveolentis Composita** (F. W. O.).

We have not printed any comments on the above preparation, but since the question has been raised, we will say a few words. We presume the title is intended to be that of a preparation meant to be an imitation of or a substitute for a well-known proprietary medicine. Some years ago, a committee of the Illinois Pharm. Association recommended the following formula for its preparation:

*Compound Elixir of Celery.*

| | |
|---|---|
| Fluid Extract of Celery Root | 1 fl. oz. |
| " " " Coca | 1 " |
| " " " Viburnum Prunifolium | 1 " |
| Alcohol | 2 " |
| Sugar | 4 tr. oz. |
| Spirit of Orange | 2 fl. dr. |
| Water, enough to make | 16 fl. oz. |

Add the Spirit of Orange to the Alcohol and to this add 1 fl. oz. of water. Mix this gradually with the Fl. Ext. of Celery, and then add the other fluid extracts. Pour this mixture into the syrup obtained by dissolving the Sugar in the remainder of the water and mix thoroughly. Let stand two days and filter, adding water, if necessary to fill up the measure.

In this form, and bearing the provisional title: *Elixir Apii Compositum*, the preparation was inserted into the *Draft for a National Formulary* published by the American Pharm. Association, and which is now in the hands of a committee for revision.

It has been pointed out that the title "Elixir Apii Compositum," or "Mistura Apii Composita" is liable to, and has in fact already been the cause of a misunderstanding, which may have serious consequences, the word "Apii" being mistaken for "Opii," so that McMunn's Elixir or some other preparation of opium may be dispensed. For this reason, the proposition is made that the adjective "Graveolentis" be placed behind the word "Apii." Another question, whether the formula will be finally introduced into the Formulary at all or not, is one which is still *sub judice*, and need not be discussed here at present. The formula has also been criticised in another respect, namely, that fluid extract of celery seed should be used instead of that made from the root.

No. 1,975.—**Hair-dyes** (W. E. B.).

We give a few formulæ from our files:

1. *Brown.*

I. Dissolve 1 oz. of sulphide of potassium (liver of sulphur) in 6 fl. oz. of water or of alcohol; let stand and pour off the clear solution, or filter it and keep it in a bottle by itself.

II. Also dissolve 1 oz. of nitrate of silver in 6 fl. oz. of water and keep the solution in a deep amber-colored vial.

When the hair is to be colored, wash it thoroughly with dilute ammonia, allow it to become nearly dry, then treat it with solution I., preferably made with alcohol, as it will dry quicker, and rub it in with a soft brush. When it is dry, apply a little of No. II. with another similar brush in like manner, great care being taken that neither solution comes in contact with the skin. When the hair is dry, wash it with soap and water, allow to dry and apply a little hair oil or pomatum.

2. *Black.*

I. Sulphide of potassium 1 oz., water or alcohol 6 fl. oz.
II. Nitrate of silver 1 oz., water 6 fl. oz.
Apply as in No. 1.

3. *Dark Brownish-Black.*

I. Same as in the preceding.
II. Nitrate of silver 1 oz., water of ammonia 1 fl. oz. Distilled water 1 fl. oz.

The sulphide of potassium used in these cases should be as fresh and free from impurities as possible.

4. *Brownish-Black.*

I. 3 oz. of powdered galls are boiled with 8 fl. oz. of water, the mixture, when cold, filtered and bottled.

II. 1 oz. of nitrate of silver dissolved in 5 fl. oz. of water and 3 fl. oz. of water of ammonia, applied as in No. 1.

5. *Chestnut-Brown.*

Dissolve 1 oz. of permanganate of potassium in 1 pint of water.

Applied as in No. 1, I. The brown color makes its appearance quickly, and may be deepened by applying the preparation oftener. As in the silver preparations, care must be exercised not to allow any of the liquid to come in contact with the skin.

No. 1,976.—**Ethereal Fluid Extract of Ergot** (H. W. D.).

We are asked to publish a formula for an "ethereal fluid extract of ergot," but confess our inability to do so, if it is expected that the product will represent the active principles of ergot.

It is not definitely known, to the present day, which of the several principles extracted from ergot possesses, either by itself or in combination with others, the oxytocic property of the drug. Yet of all solvents that could be used, ether appears to be the least suitable to extract the active principles. This menstruum abstracts chiefly fatty oil and wax. Nevertheless, it extracts also at least portions of an alkaloid which has been discovered by Tanret and named *ergotinine*, and to which a part of the medicinal effects of ergot must be ascribed. There is, however, still some doubt attached to the individuality of this substance, since several very skilled investigators, among them Dragendorff, have been unable to obtain it, working by Tanret's process. Among other principles extracted from ergot, and to which the physiological effect has been, in part at least, ascribed, are Wenzell's ecboline and ergotine, Buchheim's ergotin, Kobert's cornutine, Dragendorff's and Podwissotzky's sclerotic or sclerotinic acid, etc., etc., and all of these are insoluble in ether. Under these circumstances, it would be certainly unwise to trust to an ethereal fluid extract of ergot, at least theoretically. It is known that a hydro-alcoholic extract contains all these principles, and that an extract may even be prepared containing all or nearly all of them and completely soluble in water. What good an ethereal *fluid* extract could do we fail to see. It could not well be applied hypodermically or endermically, nor would it be suitable for internal administration. An extract prepared by ether and deprived of the excess of the latter would contain the fixed oil, of which ergot contains about 33 per cent, also a little wax and, according to Tanret, some ergotinine, besides certain coloring matters and probably minute quantities of other substances.

While we believe it entirely useless to prepare an *ethereal* fluid extract of ergot, we believe that there is some room for a fluid extract of ergot *purified by ether*, that is, a fluid extract made in the usual manner from ergot previously exhausted with ether. It has long been ascertained that a hydro-alcoholic fluid extract of ergot is apt, on standing, to separate more or less abundant insoluble matters, which sometimes adhere in solid resinous chunks to the walls and bottom of the containing vessel. A good deal of this precipitate is due to oil and wax, which partly enter into solution. If these bodies are previously removed, the fluid extract is less likely to precipitate. It has also been demonstrated that after ergot is once ground or powdered, it preserves its medicinal qualities much longer if deprived of oil immediately after being ground, no doubt owing to the oxidizing action of the air upon the oil, which is thereby rendered rancid and acid and exerts some action upon the other principles.

No. 1,977.—**Artificial Urea** (G. J. H.).

Urea, as you are probably aware, was the first organic compound which was prepared artificially. The story has been so often told that we need not take up space with a repetition of it. When urea is required for experimental purposes, it is not necessary to use the natural product obtained from the urine, as it is not so easy to obtain it in a perfectly pure state. The artificial product is much preferable in this case. It may be prepared in the following manner.

Make an intimate mixture of 1,000 parts of ferrocyanide of potassium deprived of its water of crystallization, and of 375 parts of purified carbonate of potassium freed from water at a low red heat. Place the mixture into an iron pot, cover it well, and heat it over a moderate fire (best in a charcoal furnace) until the mass is quietly melted. Allow to cool a little and then add, in small portions at a at a time, 1,875 parts of dry minium (red lead), replace the pot on the fire, and keep the mixture for some time at a melting heat.

After the reduced lead has settled to the bottom, the still liquid mass is cautiously poured out upon a clean iron plate, and allowed to cool. It now contains *cyanate of potassium*:

$$\underset{\substack{\text{ferrocyanide}\\ \text{potassium}}}{4K_4Fe(CN)_6} + \underset{\substack{\text{carbonate}\\ \text{potassium}}}{4K_2CO_3} + \underset{\text{minium}}{5Pb_3O_4} = \underset{\substack{\text{cyanate}\\ \text{potassium}}}{24KOCN} + \underset{\substack{\text{metallic}\\ \text{lead}}}{15Pb} + \underset{\substack{\text{ferrous}\\ \text{oxide}}}{4FeO} + \underset{\substack{\text{carbonic}\\ \text{oxide gas}}}{4CO}$$

The ferrous oxide, of course, is rapidly changed to ferric.

When the mass is cold, it is broken up, and dissolved in about 2,100 parts of water, and the aqueous solution, containing cyanate of potassium, filtered directly into a concentrated aqueous solution of 1,000 parts of neutral sulphate of ammonium. The resulting mixture is then evaporated over a water-bath, at a gentle heat, to a small volume. During the evaporation, and still more so after cooling of the concentrated solution, a large proportion of the formed sulphate of potassium will crystallize out. But the most remarkable change takes place in connection with the cyanate of ammonium which the liquid contained before the heating. This is by heat converted into the isomeric, but molecularly different urea (carbamide):

$$\underset{\substack{\text{cyanate}\\ \text{potassium}}}{24KOCN} + \underset{\substack{\text{sulphate}\\ \text{ammonium}}}{(NH_4)_2SO_4} = \underset{\substack{\text{cyanate}\\ \text{ammonium}}}{4NH_4OCN} + \underset{\substack{\text{sulphate}\\ \text{potassium}}}{K_2SO_4}$$

And by heat,

$$\underset{\substack{\text{cyanate}\\ \text{ammonium}}}{NH_4OCN} = CO\left\{\underset{\text{urea}}{\begin{matrix}NH_2\\ NH_2\end{matrix}}\right.$$

The final liquid, separated from the crystals of sulphate of potassium, is evaporated to dryness on the water-bath, and the urea extracted by boiling with strong alcohol (absolute alcohol is still better, if a perfectly pure product is desired). The alcoholic solution is treated with animal charcoal and then filtered and evaporated, so that the urea may crystallize. By repeating this operation one or more times, a perfectly pure product will be obtained.

No. 1,978.—**Steam Kettles for Pharmaceutical Laboratories** (W. A. S.).

This correspondent asks, what is the most effective and economical steam-kettle for use in pharmaceutical laboratories?

The question is a rather broad one, but, imagining ourselves in the place of a person desiring to fit up a pharmaceutical laboratory, in which all kinds of pharmaceutical operations are to be carried on, we will answer to the best of our ability.

We shall assume that the steam necessary for heating purposes is available, without taking into special consideration whether it is generated on the premises or is derived from somebody else's plant. In the former case, the boiler or boilers will probably have to do other work besides, so that it is somewhat difficult to calculate the exact share of expense which the single steam kettle involves. If the steam is hired, the agreement may be for a certain amount of steam as registered, or for the regular pressure for a certain time. No matter how the steam is obtained, however, *if there is any material waste of steam*, this will sooner or later appear in the accounts or returns. Supposing a high-pressure boiler supplies the steam, there will be proportionately a much greater waste of it if it is permitted to pass through the kettle without proper condensation than if low-pressure steam is used. At all events, the first point to be considered is how to utilize the heat conveyed by the steam to the utmost capacity without wasting it.

As steam kettles are ordinarily constructed, the chamber in which the steam does its work is in the form of a jacket, or double-walled chamber, constructed either by riveting an outer shell upon the lower part of the generally round-bottomed kettle, or by fastening the two parts together by flanges. It has heretofore been customary to leave the outer shell of the jacket unprotected. This shell is naturally of a larger square surface than the inner wall, since it is to be large enough to leave sufficient space between the shells for the circulation of the steam. All the work the kettle is expected to do is to be done in the inside; that is to say, the transfer of heat from the steam (or its condensation) is to extend only to the material to be heated. Yet it is safe to say that at least an equally large (and in some cases probably larger) quantity of heat is transferred from the outer shell to the surrounding air, which is constantly changing in consequence of the heated currents rising. It is evident, therefore, that if this waste of heat from outside can be stopped, a smaller volume of steam will be required to do the same work. And a smaller volume of steam will involve a smaller expenditure, either in coal or labor, or time, or wear of the kettle.

It is somewhat of a surprise that the well-known facts and principles here detailed had remained so long without practical application to steam *kettles*, though they had long been applied to steam *boilers*. Recently Mr. Thomas Burkhard, of 125 White street, New York, who has for years made all the steam apparatus used by one of us in the laboratory of the Department of Public Charities and Correction of New York, has obtained a patent for this improvement. We believe that we can do no better than to refer our correspondent to him.

No. 1,979.—**Methods of Detannating and Decolorizing** (J. E. L.).

This inquirer wants to know how to deprive wild cherry bark or cinchona bark of its tannic acid.

One way is to bring their infusion or alcoholic tincture in contact with ferric hydrate, freshly precipitated and, particularly in the case of cinchona, *not containing any free ammonia*, as this would cause the loss of some or nearly all the alkaloids. You might try the modified process of Prof. Remington, recently published (*Drug. Circ.*, May, p. 102), which will probably answer for both drugs. The process may be applied as follows:

From 6 fl. oz. of solution of tersulphate of iron prepare ferric hydrate as directed by the Pharmacopœia, wash it [until free from uncombined ammonia], then strain and press it until it weighs 8 av. oz. Mix 3 fl. oz. of fluid extract of cinchona with 8 fl. oz. of alcohol, and add the ferric hydrate. Agitate the mixture frequently until the tannin is combined, that is, until a small portion of the clear or filtered tincture ceases to give a dark color with a drop or two of tincture of iron. Then transfer the mixture upon a filter, or pour it into a percolator packed with absorbent cotton, and collect the clear tincture, which is then to be further treated as required.

We are also asked how a fluid extract of pinus canadensis may be decolorized. In reply, we would say that, though animal charcoal will probably do a good deal towards rendering the color lighter, we hardly think that it will be completely effective even after repeated treatment. We do not believe that a colorless *fluid extract*, in the true sense of the word, can be prepared. A colorless preparation may no doubt be made by distillation and admixture to the distillate of colorless menstrua. But this would not be a fluid extract. The same would be the case with hydrastis, regarding which we are also asked. A colorless preparation of hydrastis must be freed from berberine, which would impart to it a yellow color.

Yet our querist probably did not mean a fully decolorized preparation, but one which still contains the alkaloids of the drugs without the inert material. To obtain such a preparation, we advise him to use the process of Prof. J. U. Lloyd, as published in his "Drugs and Medicines of North America" (vol. I., 150):

"Percolate powdered hydrastis with officinal alcohol until the hydrastis is exhausted. Add to the percolate one-third as much by weight of alcohol as there was hydrastis, and evaporate the alcohol. After all the alcohol is driven off, mix with the residue enough cold water to bring the entire weight to two-thirds that of the hydrastis. After twenty-four hours, filter and add to the filtrate enough glycerin to bring to the weight of the hydrastis employed.

This preparation has a beautiful, deep yellow color, and when shaken, stains the bottle clear yellow. The taste is bitter, but not unpleasant and nauseating like some bitter drugs. There is no odor of alcohol, none being present, but it possesses the exact odor of fresh powdered hydrastis. . . . It contains all the alkaloids and acids of hydrastis in their natural combination."

As this is not a true *fluid* extract, Lloyd has proposed and uses for it the name liquid hydrastis (Liquor Hydrastis).

No. 1,980.—**Antifebrin** (Ph. G.).

Not *antifibrin*, but *antifebrin*, is the correct spelling. The substance, as we have several times already explained, is not a new compound, but has been known for many years under the name acetanilide. But up to within a year or so, it was not known that this substance had valuable medical properties. The discoverers of the latter thereupon gave it a new name, supposed to be more appropriate for use in prescribing, namely, *antifebrin*, from the Greek preposition *anti* "against," and the Latin noun *febris*, "fever."

Anybody can make, use, or sell acetanilide under its old name, as a chemical substance, irrespective of its use in medicine. But the word "antifebrin" is protected by the patent-laws, and only the authorized manufacturers and agents can use this term. Hence, when you receive a prescription calling for *antifebrin*, we do not think that you are justified in filling this from a stock of acetanilide, but that you should have recourse to an original package of antifebrin as put on the market by the authorized manufacturers. We are not favorably inclined to those who protect valuable medical inventions by a patent in order to enrich themselves upon the misfortunes of others. Yet we realize the fact that the entire discontinuance of patents for such inventions would be largely instrumental in removing the main incentive for bringing about such discoveries.

While, therefore, advising you to use for medicinal purposes only the product of the authorized manufacturers, there is no objection to your experimenting with the substance yourself, for the purposes of study. You may prepare acetanilide in the following manner:

Into a wide-necked flask of about 6 oz. capacity put 1 oz. of aniline (oil) and 1 oz. of glacial acetic acid; connect the flask with an upright condenser, and keep its contents at a strong boil until they congeal on cooling. Next transfer the mixture (if necessary, liquefied by heat) into a retort of about 6 fl. oz. capacity; connect this with a Liebig's condenser, and distil until the distillate begins to congeal about the neck of the retort. Then disconnect the condenser, change the receiver, and continue the distillation, taking care that the neck of the retort be kept quite hot, to prevent the congelation of acetanilide in the neck of the retort. The distillate in the receiver will speedily solidify, and presents a grayish-white color. It is purified by recrystallization from boiling water until it has become colorless, and possesses a melting point of 112° C.

The preliminary heating of the aniline and glacial acetic acid may be done in the same retort which is afterwards used for distillation; only the neck of the retort must be directed obliquely upwards, so that the condensed vapor can flow back again.

The chemical reaction is the following:

$$\underset{\text{aniline.}}{C_6H_5NH_2} + \underset{\text{acetic acid}}{CH_3.COOH} =$$
$$= \underset{\text{acetanilide}}{C_6H_5.NH.CO.CH_3} + \underset{\text{water}}{H_2O}$$

The pure substance forms colorless, shining plates, melting at 112° C. (233.6° F.), and boiling at 295° C. (563° F.). It is difficultly soluble in cold, more readily in hot water, and in alcohol. When boiled with solution of soda or with concentrated hydrochloric acid, it is decomposed into aniline and acetic acid.

**No. 1,981.—Determination of Fusel Oil in Alcohol** (Dr. M. S. W. and "U. S., Washington").

It depends altogether what is understood by the term "Fusel Oil." As it exists in crude distilled spirits, "fusel oil" is no doubt a very complex product, containing, besides amylic alcohol, certain compound ethers of the amylic series, aldehydes, volatile acids, etc., etc. With every subsequent rectification the number and quantity of these bodies decreases, the most resistant being probably the amylic alcohol. There is no reliable process known at present to determine the whole of the fusel oil. It is true that Roese last year proposed a method which appeared to give very exact results. It depends upon the ratio of increase in volume which a known quantity of chloroform undergoes when shaken with a hydro-alcoholic liquid containing fusel oil. But the variability in the composition of the latter renders the results of the test unreliable. Stutzer and Reitmair, however, have improved the process so that most of the cause of error is removed.

We will give an outline of the process, after the *Zeitsch. f. Anal. Chem.*, 1887, 377:

Stutzer and Reitmair recommend to work with liquids containing 30 per cent of alcohol, rather than with stronger ones, as it is easier to make the final dilution. Regarding the shaking with chloroform, the authors state that, when *alcohols* are under examination, the separation of a clear layer of chloroform takes place in less than one hour; in the case of brandy, rum, or other liquors, however, even after previous distillation, the presence of certain other constituents (besides amylic alcohol) causes the formation of a skin which renders a sharp reading off of the chloroformic layer impossible. This drawback, however, may be easily avoided, and the chloroform united to a sharply-defined layer in a few seconds, if a very small amount of sulphuric acid is added to the alcohol.

100 C.c. of the liquor to be assayed for amylic alcohol are mixed with a few drops of solution of soda, and then subjected to distillation in a long-necked flask, or in a flask provided with a long ascending glass tube (to cause condensation of the less volatile products) until ⅔ of the the volume has passed over. The distillate is then made up to 100 C.c. with water, and the quantity of alcohol contained in it determined by means of the specific gravity. 50 C.c. of the distillate is then poured into a flask of the capacity of 100 C.c., and enough water added to produce, after dilution, a liquid containing exactly 30 per cent of alcohol. (See the appended table, below). Next, enough pure 30% alcohol is added to complete the 100 C.c., the liquid then mixed with 1 C.c. of sulphuric acid of spec. grav. 1.286 in a long glass-stoppered tube, specially graduated for this purpose—having the graduations beginning at the bottom—20 C.c. of chloroform are next added, and the tube, after being closed with the glass stopper, set into a large vessel of water of exactly 15° C. (59° F.). As the liquid should have possessed this temperature already at the time of measuring and mixing, the tube may be withdrawn from the water after a short time, and must then be strongly shaken for about two minutes, when it is replaced in the water. After the chloroform has separated, any small droplets adhering to the walls above may be united with the main volume by gently inclining the tube causing the droplet to combine with the main bulk. After all the chloroform is united, the tube is replaced in the water for a few minutes, then withdrawn, and the layer of chloroform read off.

The following table exhibits the increase of volume of chloroform after it has dissolved a certain amount of amylic alcohol, under the conditions above named.*

The amount of fusel oil (expressed as amylic alcohol) thus found, which refers only to 50 C.c. of the distillate, must be multiplied by 2, in order to show the true percentage in the liquor under examination.

*Table of Increase of Volume of Chloroform and corresponding quantity of Amylic Alcohol, if Alcohol of 30% is under examination, and* 1 C.c. *of Sulphuric Acid* (*s. g.* 1.286) *added:*

| Increase of volume of the chloroform. C.c. | Amylic alcohol. Per cent. | Every additional 0.01 C.c. of increase of volume corresponding to per cent of amyl alcohol. |
|---|---|---|
| 0.2 | 0.1 | 0.005 |
| 0.35 | 0.2 | 0.0057 |
| 0.5 | 0.3 | 0.006 |
| 0.65 | 0.4 | 0.0062 |
| 0.8 | 0.5 | 0.0063 |
| 0.95 | 0.6 | 0.0063 |
| 1.10 | 0.7 | 0.0064 |
| 1.25 | 0.8 | 0.0064 |
| 1.40 | 0.9 | 0.0064 |
| 1.55 | 1.0 | 0.0065 |

In summer, it is not always convenient to maintain a uniform temperature. It will then be necessary to employ a correction which has been calculated by the authors. The volume of the chloroformic layer increases for every degree of temperature by 0.1 C.c.

The following table is an extract from Brix's Dilution Tables, and may be used for making the prescribed dilution to 30 per cent alcohol, in the distillate obtained as above directed:

*To Produce Alcohol of 30%.*

| To 100 C.c. of alcohol of vol. % alcohol. | Add water by vol. | To 100 C.c. of alcohol of vol. % alcohol. | Add water by vol. | To 100 C.c. of alcohol of vol. % alcohol. | Add water by vol. |
|---|---|---|---|---|---|
| 30 | 0.0 | 49 | 64.1 | 68 | 129.4 |
| 31 | 3.3 | 50 | 67.5 | 69 | 132.8 |
| 32 | 6.6 | 51 | 70.9 | 70 | 136.3 |
| 33 | 10. | 52 | 74.3 | 71 | 139.7 |
| 34 | 13.4 | 53 | 77.7 | 72 | 143.2 |
| 35 | 16.7 | 54 | 81.2 | 73 | 146.7 |
| 36 | 20.1 | 55 | 84.6 | 74 | 150.2 |
| 37 | 23.4 | 56 | 88. | 75 | 153.6 |
| 38 | 26.8 | 57 | 91.4 | 76 | 157.1 |
| 39 | 30.2 | 58 | 94.9 | 77 | 160.6 |
| 40 | 33.5 | 59 | 98.3 | 78 | 164.1 |
| 41 | 36.9 | 60 | 101.8 | 79 | 167.6 |
| 42 | 40.3 | 61 | 105.2 | 80 | 171.1 |
| 43 | 43.7 | 62 | 108.6 | 81 | 174.6 |
| 44 | 47.1 | 63 | 112.1 | 82 | 178.1 |
| 45 | 50.5 | 64 | 115.5 | 83 | 181.6 |
| 46 | 53.9 | 65 | 119.9 | 84 | 185.1 |
| 47 | 57.3 | 66 | 122.4 | 85 | 188.6 |
| 48 | 60.7 | 67 | 125.9 | | |

In a general way, the amount of water required to dilute a given alcohol to one of any desired per cent may be found from the following formula, for which the data may be taken from Hehner's tables:

$$x = \frac{100\,(p - p_1)\,a}{p_1}$$

where $x$ is the amount of water required to be added, by volume, $p$ is the percentage by weight of the given alcohol, $p_1$ that of the desired per cent, and $a$ the spec. grav. of the original alcohol.

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* The density of the acid must be exactly 1.286, as directed above. If sulphuric acid of another density is to be used, a new table of expansion for the chloroform would have to be worked out by experiment.

No. 1,982.—**Percolators and Percolation** (M. E. B.).

We have no great faith in the hot-water percolator you mention, for the reason that any percolate which is over-saturated—as must be one which is obtained with heated liquids—necessarily deposits, on cooling, such matters as it cannot retain in solution, and with every fresh deposition the solvent power of the remaining solution becomes altered, so that in many cases the precipitation continues, though perhaps very gradually, even though the product may be filtered clear from time to time. A percolate which has been obtained *clear* at a temperature as low or lower than any to which it is exposed afterwards usually remains clear, if care is taken that the menstruum is not altered by evaporation or dilution afterwards.

However, we might make a reservation in favor of the hot process percolator in certain cases. When the constituents of a drug which are to be exhausted are more of a resinous than gummy nature, and when the menstruum to be used is strong alcohol, the use of such a percolator will be an advantage, provided it permits the avoidance of loss of alcohol by evaporation. In other words, when making fluid extract of ginger, eucalyptus, nux vomica, squill, gelsemium, etc., the apparatus may be used, always providing that evaporation is prevented as much as possible. In the case of gentian, colombo, rhubarb, frangula, rumex, and many others, it is, in our judgment, entirely unsuitable.

We cannot recommend a better plan than the regular one, so well described in the "Preliminary Notices" to the last U. S. Pharmacopœia (page xxxv., etc.). The cost involved in repercolation is practically no more than that entailed by simple percolation, which usually involves more loss of menstruum and less permanency of product. Repercolation only necessitates the keeping on hand of a certain volume of reserve percolate for use in the next batch of the same drug. It accomplishes its object without any heat whatever. Ordinary percolation involves the reduction of the second or dilute percolate to a soft extract by the aid of more or less heat (sometimes so low that the recovery of the alcohol by distillation on a small scale is inadmissible), and the solution of this soft extract in the first percolate, with enough addition of the menstruum to make the proper volume.

The process of repercolation may be started and carried on in a practical way as follows: Supposing *ginger* is the subject and troy ounces and U. S. measure is to be used.

1. *First Lot.*

| | |
|---|---|
| Ginger, in very fine powder | 16 tr. oz. |
| Alcohol | a suff. quant. |

Moisten the ginger with 4 fl. oz. of alcohol, let stand awhile, well covered [we prefer a maceration of more or less duration, according to the nature of the drug in all cases], then pack firmly in a percolator, and pour 1 quart of alcohol on top. When liquid begins to drop, close the orifice of the percolator and allow to macerate (well-covered) for a few hours [it is not necessary, and sometimes even injurious, to macerate long, as the dense percolate which began to collect at the bottom will gradually diffuse upwards, thus causing a less rapid exhaustion of the powder]. Then allow the percolation to proceed until 12 fluidounces of percolate have been *slowly* obtained. This is used as *fluid extract.*

The percolation is then continued, and more alcohol, if necessary, is poured on top until 1 quart more of percolate is obtained. It is of advantage to receive this in two or three separate portions, marked respectively I., II., or I., II., and III. These several portions are put away, well-corked, and used in the next operation. As No. I. is to be used first for moistening the next batch, this portion had better be 4 fluidounces, being the 4 ounces passing through the percolator immediately after the 12 fluidounces collected as fluid extract. The other portions may be, say: No. II., 12 fl. oz.; No. III., 16 fl. oz.

Of course, the 12 fl. oz. thus obtained in the *first batch* do not fully represent the 16 fl. oz. of drug; yet it is generally conceded that they contain, here as well as in most other drugs, practically all the *useful* constituents of the drug. In the next operation, the product will approximate already much closer to a standard fluid extract, and in the succeeding operations this will be obtained practically without any difficulty.

If we knew exactly which constituents of the 16 ounces of drug, and how much of each, the first 12 fluidounces collected did *not* contain, and which are therefore carried over into the second percolate, it would be an easy matter to make already the first batch of fluid extract perfect. All that would be required would be to weigh out the constituents obtained in any manner, to dissolve them so as to make 4 fl oz., and to add them to the 12 fl. oz. previously obtained. Yet even if this were possible, it is a question whether the fluid extract thus obtained would be permanent, as an artificial solution prepared in the manner described is very much different in behavior from a natural extract, which would probably make a much more permanent and better blended mixture.

As it is, the first fluid extract obtained is deficient by just so much of the constituents as are still contained in the drug. But these constituents are carried into the next lot of 16 troy ounces, when the second batch of fluid extract is to be prepared, and thereby add to the constituents of the latter just about as much extra matter as is finally left in it at the end of the percolation.

2. *Second Lot.*

| | |
|---|---|
| Ginger, in very fine powder | 16 tr. oz. |
| Reserve Percolate I. | 4 fl. oz. |
| do. do. II. (and III.) | (on hand). |
| Alcohol | a suff. quant. |

Moisten the Ginger with Reserve Percolate I., and proceed as in first lot. When packed, pour on top Reserve Percolate II., or if this has been collected in two lots, pour on II., and when this has just disappeared from the surface, pour on III. Collect the first 14 fluidounces of percolate and use this as *fluid extract.* Continue the percolation, using finally alcohol as menstruum, until the same amounts of reserves are collected as in the first lot.

3. *Third Lot.*

Proceed as in the preceding, but collect fully 16 fl. oz. of percolate or fluid extract this time, and continue to do so afterwards.

Make it a rule, no matter what the menstruum is, never to attempt to displace it from the drug with water or with any other menstruum, before the whole amount of fluid extract and reserves are collected.

The menstruum finally left in the drug may then be displaced by water, if possible. If it was alcohol, and the drug resinous, this will be easy. In others, such as squill, the water will so swell the drug that nothing will pass through after awhile. Sometimes the retained menstruum may be better recovered by taking the drug out of the percolator and suspending it tied in a bag and compressed, in the upper part of a vessel of water kept carefully covered. If the drug is bulky this will not answer, and the best way then is to transfer the whole residue to a still and distill off all the volatile liquid. In manufacturing establishments, stills of special construction are kept for such purposes. Those who work on a small scale will sometimes find it more economical to throw away a residue than to attempt to extract the menstruum. But here the water-bath percolator our correspondent asks us about may come in handy. By means of it, the alcohol or other volatile menstruum may be recovered so far as possible. Hence, while we cannot recommend it generally as a percolator, we think it nevertheless a serviceable piece of apparatus.

No. 1,983.—**Hardened Plaster of Paris** (H. B. B.).

We are asked the following questions:

"It is stated in the books, 1, that *stucco* is plaster made tenacious by a strong solution of glue. 2. That Parian cement is plaster hardened by water containing borax. Of these I have tried both, and found that it is impossible to have gypsum set with a strong solution of glue, and that it is very much weakened by the addition of a solution of borax. Could you give any information on the subject?"

Regarding *stucco*, we can only give the information that all authorities whom we have consulted agree in directing gypsum to be made into a magma with a solution of glue, which need, however, not be concentrated. The mass requires a longer time to set than when pure water is used for mixing, but the mass becomes harder in the end. If the cast is to remain white, colorless glue or gelatin must be used.

Regarding borax, we find that various authorities differ in the proportions and method of its use. Thus one writer says that the crude pieces of burnt gypsum should be saturated with a saturated solution of borax, again burnt for six hours, and then ground. A still better effect is said to be obtained with borated gypsum, by making the magma for casting with the aid of a cold saturated solution of cream of tartar. Michaelis (in Graham Otto's "Ausführlich. Lehrbuch der Chemie," II., 3, p. 626) criticises the proportions of borax and cream of tartar quoted by others, inasmuch as they are directed in larger quantity than cold water would dissolve; while, on the other hand, gypsum should not be made into a magma with a hot solution. He therefore believes that if these additions are really useful, cold saturated solutions would be all-sufficient.

It burnt gypsum, in lumps, is placed into a saturated solution of alum, afterwards dried in the air and again burnt at as low a heat as possible, the resulting powder, particularly if mixed to a magma with solution of alum, will yield very hard casts.

The same result can probably be obtained by intimately mixing finely powdered plaster of Paris with about two per cent of burnt alum, likewise in very fine powder, and making the magma with water. The addition to the water of a little solution of silicate of sodium (not prepared from the thick or gelatinous variety, but from the clear syrupy solution) will probably aid the setting.

When a cast has been made, the best way to harden it is to warm the cast to about 176° F. (of course, this method is not applicable to surgical plaster splints upon the body of the patient), and then to quickly brush it over with a glass brush dipped in a hot saturated solution of caustic baryta, which must be carefully kept from the air until it is to be applied. The baryta will sink into the pores of the external layer of the cast, absorb carbonic acid from the air, and form carbonate of barium, which increases the density and hardness.

We presume that a mixture of plaster of Paris with powdered anhydrous borax would perhaps answer the purpose likewise; at least we should recommend to our correspondent to try it. Possibly, by taking a dilute solution of shellac and borax in water for making the magma, a satisfactory result may also be obtained. We should be glad to learn the results.

No. 1,984.—**Hypodermic Injections of Quinine** (W. A. B.).

Probably the most advantageous salts of quinine to be employed for hypodermic solutions are the double hydrochlorate of quinine and urea, or the lactate, or the *neutral* hydrochlorate, which latter is soluble in less than one part of water. The *neutral* hydrochlorates may be prepared from the *basic* salt, $C_{20}H_{24}N_2O_2.HCL.2H_2O$, either by double decomposition between the neutral sulphate or bisulphate: $C_{20}H_{24}N_2O_2.SO_4.7H_2O$, and crystallized chloride of barium, or by adding as much hydrochloric acid as is already contained in the salt.

In the first case, 548 grains of bisulphate of quinine will require for complete decomposition 244 grains of crystallized chloride of barium. Both salts are dissolved in water, the solutions mixed, heated, and allowed to cool (which renders the precipitated sulphate of barium less liable to run through the filter).

A small amount is first filtered and tested by a few drops of solution of bisulphate of quinine and of chloride of barium, to see if either salt is still present undecomposed. A trace of excess of the bisulphate is harmless, but an excess of the barium salt should not be permitted.

If the other method is adopted, 397 grains of crystallized basic (officinal) hydrochlorate of quinine are mixed with a few ounces of water and 114 grains of hydrochloric acid, U. S. Ph. (spec. gr. 1.160), added, or an equivalent quantity of a weaker or stronger acid.

On evaporating the solution of the salt, prepared by either of the above methods, the salt may be obtained in crystals or in a dry state.

No. 1,985.—**Dressing for Carriage Tops** (F. L. M.).

We have referred the question of what might be considered a good and serviceable carriage-top dressing to one of our friends, who replies that it very much depends upon what quality the leather is of which the top is made, and that it is not possible to give a method or formula which would fulfil all conditions. Good results may be obtained in many cases by making a mixture of boiled linseed oil, and about 1/10 its volume of a strong solution of caoutchouc in oil of turpentine. This may be colored if desired, either by the mechanical admixture of some fine ground color, or by the aid of some of the colors soluble in oil, now obtainable in the market.

Another method is to prepare a zinc soap (crude oleate of zinc) by double decomposition between sulphate of zinc and castile soap, and thoroughly freeing the resulting zinc soap from soluble saline matters by treatment with boiling water. This zinc soap is then dissolved in its own weight of raw linseed oil at a moderate heat, and applied to the top. If the leather has been varnished, however, this dressing may not always penetrate it sufficiently.

No. 1,986.—**Mixture containing Pyrophosphate of Iron and Phosphoric Acid** (H. C. S.).

We are asked: "How would you proceed to fill the following prescription without having a precipitate form?"

| | | |
|---|---|---|
| ℞ Quinin. Sulph. | gr. | 18 |
| Strychn. Sulph. | gr. | ⅓ |
| Ferri Pyrophos. | ℥ | 1 |
| Acid. Phos. dil. | ℥ | 2 |
| Syr. Zingiber. | ℥ | 2 |
| Tr. Digitalis | ℥ | 1½ |
| Aquæ q. s. ad | ℥ | 4 |

We have had occasion several times before to point out that the principal difficulty with mixtures containing *pyrophosphate* of iron and *phosphoric acid* is this, that the tribasic or officinal phosphoric acid is incompatible with pyrophosphates, as it throws them down in a gelatinous condition. In all cases where they are prescribed together, a special dilute phosphoric acid made from the *glacial* acid should be used. The National Formulary of Unofficinal Preparations, which is now in course of preparation, will contain a formula for this, probably in the following shape:

*Acidum Metaphosphoricum Dilutum.*

Diluted Metaphosphoric Acid.

| | |
|---|---|
| Glacial Phosphoric Acid | 750 grs. |
| Water enough to make | 10 fl. oz. |

Dissolve the glacial phosphoric acid in the water without heat, and filter.

Glacial phosphoric acid in lumps is preferable to that cast in sticks, as the latter contains a considerable proportion (sometimes more than twenty-five per cent) of phosphate of sodium, which is found necessary in order to give toughness to the sticks. The diluted acid prepared according to the above given formula contains about 10 per cent of metaphosphoric acid. If glacial acid in sticks is to be used, allowance should be made for the amount of impurities.

Now, if the prescription did not contain any quinine, there would be no difficulty. But the phosphate of quinine, which is formed when the phosphoric acid is added, is not as soluble as the sulphate and will be momentarily precipitated. On agitating, however, it will dissolve again. If the syrup of ginger is clear and permits dilution with water without becoming cloudy, the mixture, when finished, will be clear and will remain so at a medium temperature. On standing for some time, however, a turbidity will gradually make its appearance, which is partly due to the renewed separation of phosphate of quinine.

No. 1,987.—**Varnish for Oil Cloths** (J. E. L.).

Mr. L. asks: "What is the composition of the varnish used for varnishing fine table cloths and what substance imparts to it its peculiar odor?"

This is a matter which we are unable to throw any light on. We have asked some of our friends, who are more familiar with the subject, and they tell us that each manufacturer keeps his method secret. Most of them use a combination of varnishes, and one of them tells us that pale amber varnish is used by some German manufacturers and kauri varnish by some English ones. Should any of our readers be willing to supply the information, we would be much obliged to him.

No. 1,988.—**Varnish** (D. and W.).

We are requested to furnish the formula of a varnish used as "Furniture Polish" and containing as ingredients benzoin, shellac, alcohol, wax, and linseed oil, the inquirer having lost the original recipe.

Fortunately we can supply the desired information. The formula is, no doubt, that of Louis Köhler, published in 1877 (see Hager's "Pharm. Praxis," Supplem., p. 657). It is prepared by dissolving 24 Gm. (ab. 380 grains) of shellac and 4 to 6 Gm. (60 to 96 grains) of benzoin in one quart of 94 per cent alcohol. Linseed oil is directed *not* to be added to the varnish itself, but after the latter has been applied with a linen rag, it may be rubbed with the oil. For smoothening, a mixture of yellow wax and elutriated powdered pumice stone is employed.

No. 1,989.—**Detection and Separation of Antimony in Presence of Arsenic** (P., N. Y.).

It is impracticable to give more than a brief answer to the query of this correspondent, as the subject is too extensive to the fully treated of here.

If we had the case, supposed to be the one interesting our correspondent, that we had a solution *known* to contain arsenic (in form of arsenite of some base), and we suspected it to contain antimony, we would use either Lassaigne's or Dragendorff's method (see Fresenius' "Qualitative Analyse," 15th ed. [Leipzig, 1885], pp. 221).

To apply the first method, we recommend to evaporate the solution to a small bulk, then to add it very gradually and in small quantities to a flask in which a constant, slow current of hydrogen is being generated, taking care that a considerable excess of the latter gas always accompanies the arsenetted and antimonetted hydrogen produced in the reaction. The escaping gases are first passed through a tube containing broken glass, or pieces of pumice moistened with dilute solution of acetate of lead (to retain gaseous hydrochloric acid and sulphuretted hydrogen) and then through an aqueous solution of nitrate of silver. The antimonetted hydrogen will be decomposed so that a compound of silver and antimony is precipitated, while the arsenetted hydrogen forms arsenite of silver and remains in solution. A little of the antimony usually remains in solution likewise, but *no arsenic* is precipitated. The precipitate, however, contains free metallic silver besides the antimonide of silver. This precipitate is filtered off, washed with boiling water, and then heated to boiling with a aqueous solution of tartaric acid, which dissolves only the antimony (not the silver). In the filtered, colorless solution of tartrate of antimony, after it has been acidulated with hydrochloric acid, hydrosulphuric acid will produce the familiar orange-colored precipitate of sulphide of antimony, which may be further examined as to its identity.

According to the other method, the gases are generated in the same manner, and passed through a moderately wide glass tube containing a charge, at least 3 or 4 inches long, of small pieces of potassium hydrate. The latter decomposes the antimonetted hydrogen, and becomes coated thereby with a metallic gloss. The arsenetted hydrogen, however, is not decomposed and may be arrested in silver solution.

No. 1,990.—**American Pharmaceutical Association** (S. K.).

Membership in the association may be obtained by "any pharmacist or druggist of good moral and professional standing, whether in business on his own account, retired from business, or employed by another, and those teachers of pharmacy, chemistry, and botany who, after duly considering the objects of the association and the obligations of the Constitution and By-Laws, are willing to subscribe to them." To be elected, you must make application in writing, best on a blank to be obtained from the Permanent Secretary, Prof. John M. Maisch, 143 North Tenth street, Philadelphia, Pa., and have the indorsement of two members of the association. The fees are: Two dollars initiation fee, and five dollars annual dues. Delegates from State or other associations, if present at the meeting to which they were nominated, can be elected without special application or indorsement by two members, but they must pay the same fees as others.

No. 1,991.—**Water Analysis** (S. W. T.).

To make a satisfactory analysis of water, a thorough preliminary training in qualitative and quantitive analysis is absolutely necessary. The best works giving detailed information on the subject are Fresenius' Qualitative, and especially his Quantitative Analysis; Fischer, "Die Chemische Technologie des Wassers;" Wanklyn and Chapman, "Water Analysis" (London); Frankland and Armstrong, in *Journ. Chem. Soc.*, XXI., p. 77; see also the same journal, XXI., 109; "Reports of the Royal Commission on Water Supply" (London); also the extensive report on Water and Water Analysis by Prof. J. W. Mallett in the Annual Report of the National Board of Health for 1882 (Washington, 1883: Appendix D, pages 190–353, with many tables).

No. 1,992.—**Listerine** (W. A. S.).

This is said to be composed of

| | |
|---|---|
| Thymol | 6 grains |
| Boric Acid | 30 " |
| Oil Eucalyptus | 4 min. |
| Oil Gaultheria | 1 " |
| Alcohol | ½ fl. oz. |
| Glycerin | ½ fl. oz. |
| Water | to make 16 fl. oz. |

No. 1,993.—**Permanent Syrup of Hydriodic Acid** (D. W.).

The officinal formula for preparing syrup of hydriodic acid, while it is capable, under careful management, of furnishing a satisfactory product, often fails in the hands of less experienced operators, either through overheating, which causes a decomposition of the acid, or from some of the hydrosulphuric acid gas being retained in it. A better preparation, and one more easily preserved, without alteration, may be made by decomposing iodide of potassium with tartaric acid. Mr. Donald L. Cameron, at the late meeting of the New York State Pharmaceutical Association, presented a paper on this subject, in which he likewise advocates this process. Samples of the syrup thus prepared were exhibited, and showed the advantage of the process by their good appearance. If a syrup of the officinal strength is to be prepared, the improved method below given may be used.

The officinal syrup contains one per cent of hydriodic acid. The specific gravity of the finished syrup is 1.300. Consequently 1 fluidounce weighs about 593 grains, and therefore contains 5.93 grains of hydriodic acid. Leaving aside the question of weight, and aiming only to make a product containing this quantity of hydriodic acid in 1 *fluidounce*, we proceed as follows:

| | |
|---|---|
| Iodide of Potassium | 123 grains |
| Tartaric Acid | 112 " |
| Hypophosphite of Potassium | 3 " |
| Water | q. s. |
| Alcohol | q. s. |
| Syrup | enough to make 16 fl. oz. |

Dissolve the Iodide and Hypophosphite of Potassium in ½ fl. oz. of water, and the Tartaric Acid in a mixture of 2 fl. drachms each of alcohol and water; mix the two solutions in a vial, cork and shake it well, then place it in ice water for about ten minutes; again shake thoroughly, and filter through a *perfectly pure white* filter contained in a funnel, the stem of which dips below the surface of about 14 fl. oz. of syrup contained in a bottle. When the liquid has run through, wash the vial and filter with ½ fl. oz. of diluted alcohol, added in several portions. Then complete the volume by the addition of syrup to make 16 fl. oz. Keep the syrup in well-stoppered bottles.

The filtration must not be carried on in an atmosphere containing acid or other vapors which are liable to decompose the hydriodic acid. It is best to pour a few drops of ammonia water on the table near where the filtration is carried on. The hypophosphite of potassium (and probably other hypophosphites as well) appears to counteract the decomposition of the hydriodic acid, or at least to retard the commencement of the decomposition. At least this has been our experience so far. Since we have used it, we have had no trouble with our stock of this syrup, which had previously often given us cause of annoyance.

### Formulas Asked For.

1. *Bull's Cough Syrup.* This is said by Stearn's *New Idea* to be ordinary molasses containing ¼ to ⅛ grain of sulphate of morphine in 1 fluidounce.
2. Jonas Whitcomb's Remedy for Asthma.
3. Dr. J. H. McLean's Strengthening Cordial.
4. Gombault's Caustic Balsam.

◆

### Deodorized Cod-Liver Oil.

A FORMULA given by the *Archives de Pharmacie* is as follows:

| | |
|---|---|
| Cod-liver Oil | 1,000 parts |
| Tar, Norway | 4 " |
| Water of Ammonia | 20 " |

Dissolve the tar in the water of ammonia, add the solution to the oil, heat the mixture until it ceases to smell of ammonia, and filter after cooling.

[We have tried the method on a small scale, and have found that the odor and taste of the oil are, indeed, very well masked, though it cannot be said that it is "deodorized" in the true sense of the word.—ED. AM. DR.]

### Betol.

BETOL is the name that has been given to a recently introduced compound of beta-naphthol with salicylic acid—the beta-naphthol ether of salicylic acid—analogous to that to which the name *salol* has been applied. The preparation, which is the subject of a patent, is described as melting at 95° C. (203° F.).—*Pharm. Centralh.* and *Pharm. Journ.*

### Purifying Mixture for the Air of Sick-Rooms, etc.

A MIXTURE is prepared of

| | |
|---|---|
| Oil of Rosemary | 10 parts |
| " " Lavender | 2.5 " |
| " " Thyme | 2.5 " |
| Nitric Acid [of sp. g. 1.185] | 30 " |

Before use, it is well shaken, some of it then poured on a sponge, and the latter exposed on a plate for spontaneous evaporation.—*Pharm. Zeit.* and *Chem. Centralb.*

*Note.*—The source from which we take this does not specify the strength of the nitric acid. But, evidently, it would be inadmissible to use the strong acid of the U. S. Ph.; probably the acid of the Germ. Pharm., containing 30% of anhydrous acid, and having a spec. grav. of 1.185, is meant.—ED. AM. DR.

### [Corn-Cure Collodion.

JOHANNES BIENERT recommends the following composition, which he states to be as effective as that which is usually prepared with extract of Indian hemp:

| | |
|---|---|
| Venice Turpentine | 1 part |
| Chlorophyll | q. s. |
| Salicylic Acid | 10 parts |
| Collodion | 100 " |

The author had been led by a recent report regarding the supposed noxiousness of the collodion with Indian hemp and salicylic acid (see above, page 144), to communicate the above formula.—*Parm. Zeitsch. f. Russl.*

*Note.*—Chlorophyll is here understood to mean the commercial *sap-green* (Succus viridis), which is prepared from the slightly fermented juice of ripe buckthorn berries (*Rhamnus cathartica* L.) with addition of small amount of potassa and alum, and evaporation to the consistence of an extract.—ED. AM. DR.

### Antifungin.

A WHITE, sweet-tasting powder, said to consist of a soluble borate of magnesium, prepared by a special process, has been introduced under the name "Antifungin" as possessing extraordinarily powerful disinfecting properties, and as being a specific against diphtheria. It is said to be soluble in four parts of boiling water, and it is used in form of a fifteen-per-cent solution. From five to twenty drops, according to age, are administered every one or two hours, and about a teaspoonful is sprayed hourly in the sick-chamber. Further, the diphtheritic growth is painted with the solution every one or two hours until it disappears.—*Pharm. Centralh.* and *Pharm. Journ.*

**Condensed Beef in Tablets.**—These are being introduced into French practice under the name of *tabelettes Rousseau*. The preparation consists of condensed beef reduced to a powder by a new process; it is unalterable, pleasant to the taste, and easily digested. It is very rich in nitrogenous material and in phosphates, and its assimilation is rendered certain by complete and rapid peptonization. Each tablet contains 20 grammes (about 5 drachms) of beef powder, representing 80 grammes of fresh beef. According to the author, this preparation soon makes chlorotic and cachectic patients able to digest other kinds of nourishment easily.—*Br. and Col. Drugg.*

# FORMULAS.

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## Some new Formulæ for Perfumes.

The formulæ below given are taken from Eugen Dieterich's "Neues Pharmaceutisches Manuale" (Berlin, Springer, 1887. See foot-note in our June number, p. 119). As will be noticed, many of the formulæ contain as an ingredient triple extract of jasmin or tuberose, which the author points out can be made the basis of a great variety of different odors. The quantities are given in grains (by weight) unless otherwise specified.

### 1. *Essence of Ambergris.*

| | | |
|---|---|---|
| Triple Extract of Jasmin | 770 | grains. |
| Oil Rose | 8 | “ |
| Oil Orris (liquefied by warming) | 1 | drop. |
| Ambergris | 8 | grains. |
| Tonquin Musk | ¾ | grain. |
| Vanillin | ⅙ | “ |
| Cumarin | ¾ | “ |
| Alcohol | 2,300 | grains. |

Rub the ambergris and musk with a few drops of water before introducing them into the alcohol. Macerate eight days and filter.

### 2. *Bouquet d'Amour.*

| | | |
|---|---|---|
| Triple Extract of Jasmin | 770 | grains. |
| Civet | ⅓ | grain. |
| Cumarin | ¾ | “ |
| Heliotropin | ⅛ | “ |
| Oil Bergamot | 48 | grains. |
| “ Lemon | 5 | drops. |
| “ Lavender | 3 | “ |
| “ Cloves | 1 | drop. |
| “ Orris [melted] | 1 | “ |
| Alcohol | 2,300 | grains. |

Prepare like No. 1.

### 3. *Ess. Bouquet.*

| | | |
|---|---|---|
| Triple Extract of Jasmin | 770 | grains. |
| Ambergris | 2⅓ | “ |
| Musk | ¾ | grain. |
| Cumarin | ¾ | “ |
| Heliotropin | ¾ | “ |
| Vanillin | ¾ | “ |
| Oil Rose | 24 | grains. |
| “ Bergamot | 8 | “ |
| “ Neroli | 8 | “ |
| “ Geranium, French | 5 | drops. |
| “ Ylang | 5 | “ |
| “ Rhodium | 2 | “ |
| “ Sassafras | 2 | “ |
| “ Cinnamon | 2 | “ |
| “ Wintergreen | 2 | “ |
| “ Orris [melted] | 1 | drop. |
| “ Almond, essent | 1 | “ |
| Alcohol | 2,300 | grains. |

Prepare like No. 1.

### 4. *Heliotrope.*

| | | |
|---|---|---|
| Triple Extract of Jasmin | 770 | grains. |
| Heliotropin | 5 | “ |
| Cumarin | ⅞ | grain. |
| Ambergris | ⅞ | “ |
| Civet | ⅙ | “ |
| Oil Rose | 24 | grains. |
| “ Geranium, French | 5 | drops. |
| “ Neroli | 5 | “ |
| “ Ylang | 2 | “ |
| “ Almond, ethereal | 1 | drop. |
| “ Orris | 1 | “ |
| Acetic Ether | 5 | drops. |
| Alcohol | 2,300 | grains. |

Prepare like No. 1.

### 5. *Jockey Club.*

| | | |
|---|---|---|
| Triple Extract of Jasmin | 460 | grains. |
| “ “ “ Tuberose | 300 | “ |
| Spirit of Nitrous Ether | 80 | “ |
| Storax, crude, liquid | 80 | “ |
| Civet | ⅛ | grain. |
| Tonquin Musk | ⅓ | “ |
| Cumarin | 1⅙ | grains. |
| Oil Rose | 16 | “ |
| “ Bergamot | 8 | “ |
| “ Geranium, French | 5 | drops. |
| “ Neroli | 5 | “ |
| “ Cinnamon | 2 | “ |
| “ Rhodium | 2 | “ |
| “ Almond, essent | 2 | “ |
| “ Orris | 1 | drop. |
| Alcohol | 2,080 | grains. |

Prepare like No. 1.

### 6. *Frangipanni.*

| | | |
|---|---|---|
| Triple Extract of Jasmin | 460 | grains. |
| “ “ “ Tuberose | 300 | “ |
| Tonquin Musk | ⅙ | grain. |
| Civet | ⅛ | “ |
| Cumarin | ⅞ | “ |
| Oil Santal [East-Ind.] | 2 | drops. |
| “ Rhodium | 2 | “ |
| “ Rose | 10 | “ |
| “ Geranium, French | 2 | “ |
| “ Orris | 1 | drop. |
| Acetic Ether | 5 | drops. |
| Alcohol | 2,300 | grains. |

Prepare like No. 1.

### 7. *Honeysuckle.*

| | | |
|---|---|---|
| Triple Extract of Jasmin | 300 | grains. |
| “ “ “ Tuberose | 300 | “ |
| Vanillin | ⅞ | grain. |
| Cumarin | ⅓ | “ |
| Storax, liquid | 32 | grains. |
| Tonquin Musk | ⅙ | grain. |
| Oil Rose | 16 | grains. |
| “ Geranium, French | 5 | drops. |
| “ Orris | 1 | drop. |
| “ Neroli | 2 | drops. |
| “ Almond, ethereal | 1 | drop. |
| Alcohol | 2,500 | grains. |

Prepare like No. 1.

### 8. *Patchouly.*

| | | |
|---|---|---|
| Oil Patchouly | 24 | grains. |
| “ Rose | 8 | “ |
| “ Bergamot | 8 | “ |
| “ Geranium, French | 5 | drops. |
| “ Sassafras | 5 | “ |
| Cumarin | ⅙ | grain. |
| Alcohol | 3,080 | grains. |

Prepare like No. 1.

### 9. *Spring Flowers.*

| | | |
|---|---|---|
| Triple Extract of Jasmin | 620 | grains. |
| Ambergris | 2 | “ |
| Tonquin Musk | ⅓ | grain. |
| Cumarin | ⅞ | “ |
| Heliotropin | ⅞ | “ |
| Oil Rose | 16 | grains. |
| “ Bergamot | 16 | “ |
| “ Geranium, French | 8 | “ |
| “ Neroli | 8 | “ |
| “ Ylang | 3 | drops. |
| “ Cinnamon | 3 | “ |
| “ Orris [melted] | 1 | drop. |
| Alcohol | 2,500 | grains. |

### 10. *Ylang-ylang.*

| | | |
|---|---|---|
| Triple Extract of Jasmin | 300 | grains. |
| Oil of Ylang | 16 | “ |
| “ Rose | 8 | “ |
| Civet | ⅓ | grain. |
| Cumarin | ⅞ | “ |
| Vanillin | ⅙ | “ |
| Oil Geranium, French | 5 | drops. |
| “ Orris [melted] | 1 | drop. |
| Alcohol | 2,780 | grain. |

### 11. *Eau d'Amour.*

| | | |
|---|---|---|
| Oil of Bergamot | 120 | grains. |
| “ Rose | 64 | “ |
| “ Ylang | 16 | “ |
| “ Neroli | 16 | “ |
| “ Orris [melted] | 1 | drop. |
| Tonquin Musk | ½ | grain. |
| Ambergris | ⅞ | “ |
| Cumarin | ⅞ | “ |
| Acetic Ether | 16 | grains. |
| Spirit of Nitrous Ether | 80 | “ |
| Triple Extract of Jasmin | 770 | “ |
| Alcohol | 12,800 | “ |

### 12. *Eau de Bretfeld.*

| | | |
|---|---|---|
| Oil of Bergamot | 300 | grains. |
| “ Lemon | 80 | “ |
| “ Cloves | 32 | “ |
| “ Lavender | 32 | “ |
| “ Neroli | 24 | “ |
| “ Rose | 8 | “ |
| Tonquin Musk | ⅓ | grain. |
| Vanillin | ⅙ | “ |
| Alcohol | 14,000 | grains. |
| Distilled Water | 770 | “ |

### 13. *Eau de Cologne.* I. (*Acid*).

| | | |
|---|---|---|
| Oil of Bergamot | 160 | grains. |
| “ Lemon | 80 | “ |
| “ Rosemary, French, rect | 80 | “ |
| “ Neroli | 48 | “ |
| “ Cloves | 16 | “ |
| “ Ylang | 4 | “ |
| Acetic Ether | 16 | “ |
| “ Acid | 16 | “ |
| Alcohol | 12,800 | “ |
| Distilled Water | 770 | “ |

### 13. *Eau de Cologne.* II. (*Acid*).

| | | |
|---|---|---|
| Oil of Bergamot | 160 | grains. |
| “ Lemon | 80 | “ |
| “ Rosemary, French, rect | 80 | “ |
| “ Lavender, rect., best. | 15 | “ |
| “ Cloves | 16 | “ |
| “ Neroli | 16 | “ |
| “ Ylang | 2 | “ |
| “ Wintergreen | 2 | “ |
| Acetic Ether | 2 | “ |
| “ Acid | 16 | “ |
| Alcohol | 12,800 | “ |
| Distilled Water | 770 | “ |

### 14. *Eau de Cologne.* III. (*Alkaline*).

| | | |
|---|---|---|
| Oil of Bergamot | 180 | grains. |
| “ Lemon | 80 | “ |
| “ Rosemary, French, rect | 32 | “ |
| “ Neroli | 16 | “ |
| “ Lavender | 8 | “ |
| Water of Ammonia | 4 | “ |
| Alcohol | 13,800 | “ |
| Distilled Water | 1,500 | “ |

## Paste for Labels.

Eugen Dieterich recommends either of the following as good pastes for labels:

1. Mix 400 parts of dextrin with 400 parts of water, then add 200 parts more of water, add 20 parts of glucose and 10 parts of sulphate of aluminium (*not* alum), and heat in a steam-bath to about 90° C. (194° F.). The mass is at first thick, but gradually becomes clear and thin-fluid.

2. Reduce 400 parts of gommelin [a patented article, sold by Gehe & Co., of Dresden, and intended as a substitute for natural gum arabic. We presume it is identical with or at least closely related to the substance now much advertised, a note on which will be found in our May number, Query 1,914], to a coarse powder, dissolve it in 600 parts of cold water, add 10 parts of glucose and 20 parts of glycerin, and heat to 90° C. (194° F.).

Both of the above are very suitable for paper labels, postage stamps, etc., but the second formula yields the best product.—*Pharm. Centralhalle.*

## Iodoform Pencils or Suppositories.

A correspondent of the *Pharmaceutische Post* describes the following method of making iodoform pencils, which he has found preferable to any other.

Moisten the prescribed quantity of iodoform with a few drops of alcohol, then take a sufficient quantity of glycerite of tragacanth (1 part of tragacanth and 4 p. of glycerin) to make a stiff mass. Roll the mass in magnesia [the editor suggests lycopodium or powdered acacia], and having reduced it to the proper diameter, cut it into the proper number of pieces.

**To Mask the Taste of Cod-Liver Oil**—and probably also its odor, the following novel way is proposed in the *Pratique médicale*:

| | | |
|---|---|---|
| Cod-Liver Oil | 1,000 | parts. |
| Stockholm Tar | 4 | “ |
| Water of Ammonia | 20 | “ |

Dissolve the tar in the water of ammonia; add the oil, shake well and boil until ammoniacal vapors are no longer given off. Then filter and add 8 drops of oil of star anise for every 36 or 37 fl. oz. of cod-liver oil.

## Prescription for Summer Tonic.

*Life* for July 21st furnishes the following specimen of popular Latin:

| | |
|---|---|
| ℞ Spiritus Vini Otardi | ℥ i. |
| Spiritus Vini Jamaici | ℥ i. |
| Sugarum Whitum | ℥ iv. |
| Icibus Finis | ℥ ij. |
| Sliceum Pineappleii | quant. suff. |
| Strawberrii | “ “ |

M. Sig. Shakitis violenter. Suckite dulciter cum strawum.

# American Druggist

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## Saccharated Casein: a new Emulsifying Agent.

Mr. Léger some time ago announced that he had discovered a new emulsifying agent, namely, a compound of casein and sugar, regarding which we gave a brief note in one of our preceding numbers. We have now received a more detailed account of its mode of preparation and use (partly in *Bulletin Commercial*, 1887, No. 7) from which we take the following.

The first step is the preparation of the "lactoserum." The second operation involves the isolation of the casein, its conversion into the soluble variety, and finally, the preparation of the saccharate.

### 1. *Preparation of the "Lactoserum."*

| | |
|---|---|
| Cow's Milk | 1 gallon |
| Water of Ammonia | 2 fl. oz. |

Heat the milk to 40° C. (104° F.), add the ammonia, and pour the mixture into a funnel (or funnel-shaped vessel) provided with a stop-cock, or the neck of which bears a piece of rubber tubing with pinch-cock. After 24 hours, the whole of the fat will have risen to the surface as a creamy layer. The lower liquid, rendered opalescent by the presence of mineral salts (phosphate and carbonate of calcium) and by a small quantity of butter, is then gently withdrawn. It constitutes the "lactoserum" of G. Quesneville, slightly modified.

### 2. *Preparation of the Saccharate of Casein.*

| | |
|---|---|
| "Lactoserum" | of 1 gall. of milk |
| Bicarbonate of Sodium | q. s. |
| Sugar, in fine powder | q. s. |
| Acetic Acid | q. s. |

Precipitate the lactoserum in the cold by means of acetic acid, wash the precipitate by decantation with water at between 35° and 40° C. (95° to 104° F.), collect it upon a wet strainer and press it. In the resulting cake determine the quantity of dry casein, by drying a small weighed portion (say 1 to 2 grammes) in a drying oven at 110° C. (230° F.). Now triturate the damp cake of casein with 3¼ oz. of powdered sugar and with 8 *parts* of bicarbonate of sodium for every 100 *parts* of casein calculated as *dry*. Under the influence of a prolonged trituration, and in consequence of the presence of the bicarbonate, the casein swells up and becomes soluble in water. Next, more powdered sugar is gradually added until this amounts to 9 *parts* for every 100 parts of casein calculated as dry. After the mass has been long and strongly pounded, it acquires the consistence of a lozenge paste which is divided into small fragments, and then dried either by exposure to the air, or in a stove, at a temperature of 25° to 30° C. (77° to 86° F.). After complete drying, it is powdered and the product passed through a sieve which should not be too fine.

When the moist casein is triturated with the bicarbonate of sodium alone, it is seen to swell up, to change from an opaque to a translucent condition, and to assume a consistence of firm jelly, resembling a thick mucilage of tragacanth. In this condition, the casein does not mix readily with sugar. But if the trituration is performed in the presence of a little sugar, the admixture of the remainder of the sugar presents no difficulties.

This saccharate of casein may be kept for any length of time. The author has had some on hand for three years, without its showing any alterations.

Saccharate of casein is adapted for emulsifying, easily and quickly, all sorts of substances. The resulting emulsions are very stable; and those prepared from oils are perfectly white. The fat globules of the emulsions are exceedingly small, smaller even than those of milk. By following the below-given instructions, uniform success will be obtained, according to the assurance of the author. Only *one* point is of importance. namely, *never to change* the proportions between the oil, the saccharate of casein, and the water, as the author has found those given by him to be the most advantageous.

The substances which may be emulsified by this new agent are:

1. Fatty Oils.
2. Essential Oils.
3. Balsams and Turpentines.
4. Resins and Gum-Resins.
5. Resinous and Gum-resinous Tinctures.

The following examples are given by the author:

1. "*Looch Huileux*" (Codex); or *Emulsion of Sweet Almond.*

| | |
|---|---|
| Oil of Sweet Almond | 15 parts |
| Saccharate of Casein | 15 " |
| Water | 5 " |

With the Saccharate of Casein and the water make a mucilage, with which the oil of almond is gradually incorporated; then add slowly

| | |
|---|---|
| Water | 95 parts |
| Orange Flower Water | 15 " |

The product should weigh 150 parts. In proportion as the oil is added to the mucilage of the saccharate, it will be noticed that the mixture acquires consistence, and this is a sign that the operation progresses satisfactorily, and that the oil will not separate, even when water is added rather carelessly.

2. *Emulsion of Castor Oil.*

| | |
|---|---|
| Castor Oil | 30 parts |
| Saccharate of Casein | 30 " |
| Water | 10 " |

Proceed as in the preceding case; then add

| | |
|---|---|
| Water | 100 parts |
| Cherry-laurel Water (Codex) | 5 " |

These emulsions contain no syrup, because the sugar already contained in the saccharate serves the same purpose.

3. To emulsify the substances named in the three last-named classes (see above), the following general directions will be sufficient:

*a.* 10 grammes (160 grains) of the saccharate will generally suffice for an emulsion of 125 to 150 grammes (4 to 5 fluidounces).

*b.* The amount of water should be 1 part for every 1 part of the saccharate.

*c.* The substances to be emulsified should be previously dissolved in a small quantity of 90° alcohol, the exact amount depending upon the nature (consistence) of the substance. For resins and gum-resins, camphor, balsam of Tolu, etc., this amount should be ten times that of the substance. The strongly resinous tinctures, such as those of Tolu, benzoin, etc., should be mixed with their own weight of alcohol; the same is to be done with balsam of copaiba. For turpentines, 2 parts of alcohol are to be used for every 1 part of the former. And in the case of essential oils, 4 parts of alcohol will be required for every 1 part of oil.

It should be remarked here that, since the resins often possess acid properties, they may coagulate the casein.

This may be avoided, however, by adding to the preparation a little bicarbonate of sodium, which must, of course, be adjusted to the necessity of the case. A little excess of alkali does no harm, however, and since it is, in fact, preferable to adopt a uniform quantity, the author recommends to use, in the case of resins, always about 4 grains of bicarbonate of sodium for every 4 or 5 oz. of emulsion. As an example, the author gives a formula for

3. *Emulsion of Copaiba.*

| | |
|---|---|
| Copaiba | 25 parts |
| Alcohol | 25 " |

Mix in a vial holding 5 fl. oz.
Dissolve on a water-bath

| | |
|---|---|
| Saccharate of Casein | 10 parts |
| Bicarbonate of Sodium | 0.2 " |
| Water | 10 " |

and pour the solution into the vial containing the Copaiba and Alcohol, and shake forcibly. The emulsion will form at once; then add, in succession,

| | |
|---|---|
| Syrup of Tolu | 25 parts |
| Peppermint Water | 40 " |

Emulsions with balsam of Tolu, benzoin, ammoniac, camphor, tar, turpentine, oil of turpentine, etc., are prepared in the same manner.

## Potelin.

Potelin is the name of a mixture prepared from glue, glycerin, and tannic acid, so named after a certain Mr. Potel, who is said to have originated it. The editor of the *Rundschau* (Prag) states that such stoppers are probably elastic, resistant, and probably cheap. The proper proportion would have to be determined by experiments. The mass should be of such a nature that it can be cast in form of stoppers.

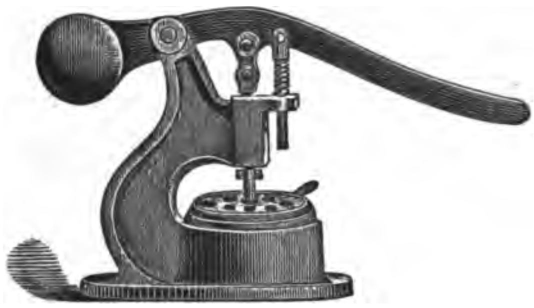
*Note.*—We have published the formula of a bottle-glue, composed of glue, glycerin, and tannic acid, already in 1884 (Am. Drugg., 1884, p. 37). We have used this a number of years for sealing such bottles as contained liquids which would dissolve the usual sealing materials, such, for instance, as chloroform, disulphide of carbon, etc. The idea of casting it in form of stoppers may turn out to be practical.—Ed. Am. Dr.

### "Stenocarpine," a new local Anæsthetic.

Dr. J. **Herbert Claiborne**, Jr., reports in the *Medical Record* of July 30th that he made experiments with the aqueous solution of an alkaloid extracted by Dr. Allen M. Seward, of Bergen Point, N. J., from the leaves of a tree found in the Southern States, which had been accidentally discovered to act as a local anæsthetic. The way in which this was first observed was as follows: A veterinary surgeon, Mr. M. Goodman, while travelling throuhg West Feliciana Parish, La., had occasion to apply a poultice to the fetlock of one of his horses. Having none of the customary means at hand with which to make it, he raked together a number of leaves from the ground, and having saturated them with hot water, applied the mass as a poultice to the inflamed part. After the swelling had arrived at the proper condition, he made a free incision into the part without the horse giving any evidence of pain. It occurred to him that the leaves might have anæsthetic properties. And a few weeks after, when he happened to have a chance to try them again, the same result was obtained.

Dr. Claiborne found that 2 drops of a 2-per-cent solution of the alkaloid prepared by Dr. Seward from the leaves produced anæsthesia in the eye of a rabbit, which lasted for about 30 minutes (exact data are given in the original paper). There was also dilatation of the pupil, which was greatest after 20 minutes. Dr. Claiborne also experimented with it on man, and actually performed the excision of a sebaceous tumor on the forehead of a patient in the Northwestern Dispensary without discomfort to the patient.

He thinks that in its effects upon the eye it seems to stand midway between cocaine and atropine. Its anæsthetic effects last about as long as those of cocaine ; its mydriatic effect is greater than that of atropine, while its paralyzing effect upon the muscles of accommodation is perhaps as great as that of atropine, reaching its maximum effect in about 6 or 7 hours, and disappearing rapidly thereafter.



Mylius' tablet-making machine.

Dr. Seward has provisionally named the alkaloid *stenocarpine* from the resemblance of the tree furnishing it to *Acacia stenocarpa* (*Med. Record*, August 13th).

Dr. Herman Knapp also relates his experience in the *Medical Record* of August 13th. His results confirm those of Dr. Claiborne.

### Note on Antifebrin or Acetanilide.

V. **della Cella** communicates some results of experiments with acetanilide or antifebrin.

A warm solution of acetanilide is colored red by ferric chloride, and somewhat darker red by diluted chromic acid. Many other organic substances furnish the same tints. If it be treated, dry, with concentrated sulphuric and nitric acids, it is dissolved without change; treated with arsenic, sulphuric and nitric acids, and warmed, it yields a red color. The following reaction appears to be the most interesting: On pouring upon a few milligrammes of acetanilide 2 or 3 drops of solution of nitrate of mercury, and gently warming, the acetanilide is dissolved: on now adding 2 to 3 drops of sulphuric acid of 66° B., an intense blood-red color makes its appearance. This reaction takes place with as little as 1 milligramme, and it is not interfered with by the presence of indifferent substances, such as starch. Nevertheless, it is not restricted to acetanilide, but is also produced by resorcin, phenol, salicylic, tannic, and gallic acids, thymol and benzoic acids.

In order to extract acetanilide (antifebrin) from the urine, Yvon's method may be employed, namely, shaking the urine with chloroform and evaporating the chloroformic solution. Ether furnishes the same results, if urine is used in which acetanilide has been purposely dissolved. But the urine of patients who had taken as much as 8 to 30 grains of acetanilide furnished negative results. Hence it may be assumed that the substance is decomposed in its passage through the organism. This latter statement, however, is in conflict with the observations of the discoverers of the antipyretic action of acetanilide, Drs. Cahn and Hepp.—*J. de Ph. et Chim.* and *Chem. Centralbl.*, No. 24.

### MACHINE FOR MAKING COMPRESSED TABLETS OR TROCHES.

Dr. **Ernest Mylius**, of Leipzig, in conjunction with W. Martin, has devised a new handy machine for turning out compressed tablets or troches, which is illustrated in the accompanying cut. It has the form of a lever punch, fitting into a hole in the bed-plate. The hole forms the receptacle for the damp mass which is to be compressed. At the bottom of the plate there is a strong slide by means of which the lower orifices of the holes may be closed. After the holes are filled with the mass, and the excess has been removed with a spatula, the punch is depressed and the contents of the corresponding hole thereby compressed into a firm tablet. The punch is then slightly raised, the slide below the bed-plate drawn out, and the tablet then pushed through by again depressing the punch.

The machine, with a single stamp, is sold at Leipzig for 27½ marks.—After *Pharm. Handelsblatt*, May 11th.

### Purification of Sulphuretted Hydrogen Containing Arsenic.

**The** attention of chemists has long been directed to the necessity of insuring the absence of the volatile arsenic compounds in the current of hydrosulphuric acid gas used in forensic investigations or in accurate analyses. The usual substance from which the gas is generated, viz., sulphide of iron, is often found to be contaminated with traces of arsenic. Hence it has been proposed to abandon this for delicate operations, and to employ another sulphide, such as calcium sulphide which would absolutely exclude the presence of arsenic.

Only one method has so far been proposed, viz., by Von der Pfordten, for depriving sulphuretted hydrogen gas, when prepared from sulphide of iron, of any arsenic it may contain. This is accomplished by causing the gas to pass over commercial sulphide of potassium, which must, however, be kept at a temperature between 350° and 360° C., which is not very convenient.

Oscar Jacobsen has now devised a method by which this may be accomplished in the most simple manner.

This method is based on the fact that arsenetted hydrogen and iodine, when coming in contact even at ordinary temperature, are converted into arsenious iodide and hydriodic acid, while sulphuretted hydrogen has no effect upon solid iodine or iodine dissolved in strong hydriodic acid.

All that is, therefore, necessary for purifying the sulphuretted hydrogen of arsenic is to conduct it, previously somewhat dried, over solid iodine before it is washed with water.

The author quotes the following experiment:

Sulphuretted hydrogen was generated from 80 Gm. of commercial sulphide of iron and a quantity of arsenide of iron, prepared by heating together 15 Gm. of powdered iron with 1.5 Gm. of arsenic. For decomposing these, 480 Gm. of dilute sulphuric acid (1: 5) were used, which were purposely contaminated with 0.5 Gm. of arsenious acid. The generated gas was made to pass, in a rapid stream, a chloride of calcium apparatus, and then three successive glass tubes, each charged with 5 Gm. of coarsely powdered iodine, the latter forming in each tube a column of about 6 cm. in length, kept in place by bunches of glass wool. The gas issuing from the last tube was conducted into warm, pure fuming nitric acid, and the whole operation was terminated in one and one-half hours. The sulphur remaining unoxidized in the acid was then completely oxidized by heat. The sulphuric acid, after the nitric acid had been dissipated, was found absolutely free from arsenic. On examining the three columns of iodine, it was found that only the first one contained any arsenic, none of the latter reaching either the second or the third.

In practice it is unnecessary to use so much iodine. The author recommends to use two or three grammes, which are to be placed, in coarse powder, into a narrow glass tube of 30 or 40 Cm. in length. It is best to divide the quantity into several portions, to be separated and held in place by little pellets of glass wool.

In forensic analyses it will be necessary to furnish a positive proof that the sulphuretted hydrogen employed has been thoroughly freed from arsenic. This may be accomplished by joining to the first tube a second, shorter one, likewise containing iodine. At the end of the operation, this is sealed at both ends in the flame, and preserved for future examination.

It is not advisable to dry the iodine thoroughly, since it is of decided advantage if the solid particles of iodine become covered during the reaction with a thin layer of a solution of iodine in hydriodic acid.

The small quantity of vapor of arsenic which is carried along with the sulphuretted hydrogen is arrested in the wash-bottle in form of hydriodic acid.

If pure hydrogen gas is to be freed from arsenetted hydrogen, the current is conducted first over iodine in the same manner as before described, then over glass wool moistened with concentrated solution of iodide of potassium, and finally through solution of potassa.—*Ber. Deutsch. Chem. Ges.*, 1887, 1,999.

### STEAM-JET FITTER PUMPS.

The principle of producing a vacuum by means of a jet of water or steam under pressure has long been applied to mechanical operations, such as pumping liquids, aspirating gases, rapid filtration, etc., etc. In the case of filtration for laboratory purposes, water pressure is usually employed. But when large quantities of liquid are to be filtered, and particularly when the liquid passes through the filtering medium only with difficulty, it is advantageous to replace the water by a jet of steam. Koerting Brothers, the original manufacturers of the steam-injectors, have put on the market a special apparatus for this purpose, which is illustrated in the accompanying cut.

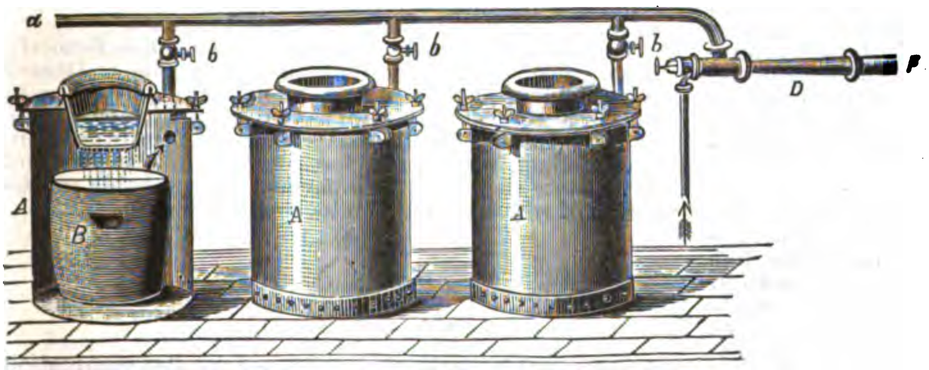
The tube *a*, *D* and *F* is intended for aspirating and carrying off the aspirated air. At *b* is a steam-valve, by opening which, a jet of steam, issuing from a fine opening, is projected into the tube *D*, causing the production of a partial vacuum in the tube *a* and the closed vessels with which this communicates. *A*, *A*, *A* are cylindrical vessels provided with removable and tight-fitting covers, in the centre of which are placed the filters. Inside of the vessels are placed receivers to catch the filtrate. When one or more of these vessels has been connected with the exhaust, and the corresponding valve at *b* has been opened, filtration proceeds at a rapid rate, but care must be taken that the filters are always kept full enough to prevent air being aspirated directly from the exterior. When one or the other ceases to operate properly, it may be shut off from communication with the exhaust pipe by closing the valve *b* without disturbing the remainder.

The steam-jet or injector may be obtained in this country separately, and the apparatus constructed and put together by any machinist.

### Qualitative Test for Boron in Milk and Similar Complex Liquids.

**Kretschmar** describes the following simple method by which the presence of boron—whether added in form of boric acid or of borax—may be detected in milk or similar liquids, in which it is usually impossible to detect boron by the simple flame test, after incineration.

The sample of milk, etc., is first thoroughly shaken so as to distribute through it any deposited borate that might be present. Then remove 5 or 6 C.c. of the liquid into a platinum crucible and evaporate it over a small flame to about one-third. Next add 5 or 6 drops of strong hydrochloric acid to liberate any boric acid that might be in combination, and hold over the crucible the non-luminous flame of a Bunsen burner in an oblique position. If boric acid is present, the intense characteristic green color imparted by boron will gradually become visible in the flame. This lasts until inflammable vapors are given out by the heated residue. As soon as these vapors take fire, the green color is suppressed. The volatile evolution of the boron, however, through the high temperature and the addition of the hydrochloric acid is so complete, that in most cases the color of the flame ceases to be green before the inflammable vapors ignite.



Steam-jet filter pump.

This reaction is exceedingly sharp to detect boron, but it does not permit to discriminate between boric acid and borax, either of which may have been originally added to the milk.

**Note by Ed. Am. Drugg.**—It would be worth while to find out whether the process could not, after all, be used for discriminating between boric acid and borax. If the flame coloration is not obtained in *one* sample when following the above directions, *with omission of the hydrochloric acid*, and if it then be obtained from a second sample of the same milk after acidulation with hydrochloric acid, this will be conclusive evidence that borax or some borate was present. Whether free boric acid would at once show itself by the flame test, without any addition of hydrochloric acid, would have to be proven by experiment. On the face of it, we see no reason why it would not do so. We have no time just now to try it, but leave it to some of our readers, with the hope that they will report to us the result of their experiments.

### STILL FOR ESSENTIAL OILS.

In an article on essential oils, Mr. Thomas Christy, of London (in his *New Commercial Plants and Drugs*, No. 9), makes the following remarks regarding a practical still for preparing essential oils on a small scale:

"In order that any of my readers who may wish to start, in a small way on their estates, the process of distilling, I have searched for the most simple and reliable apparatus for the purpose, and one of the best I have met with is that manufactured by Mr. Broquet, of Paris, of which I reproduce a block kindly lent to me.

"This apparatus is constructed to meet the wants of those whose desire is to distil economically, without too great an outlay of capital and labor, all kinds of oils. It is capable of holding 12 litres, and can be heated by any kind of fuel. One great advantage claimed for it is that it can be worked over an ordinary stove or kitchen fire, and thus save the expense of a separate heating apparatus.

Broquet's still.

"Any one desirous of becoming fully acquainted with the distillation of oils and essences should procure a copy of the *Traité détaillé et pratique de distillation à l'usage des familles*, by Valyn. In this work, full particulars are given as to the best and easiest method for the distillation of oils and essences, and for the preparation of the different kinds of raw material for the still."

### On Duboisine.

**Prof. Ladenburg** some years ago reported that the alkaloid *duboisine* (from *Duboisia myoporoides*) was nothing else than impure hyoscyamine.

Since then, Prof. Harnack has found that the therapeutic action of the alkaloid was much more powerful than that of hyoscyamine, and that, therefore, the identity of the two alkaloids was more than doubtful.

Ladenburg, in conjunction with F. Petersen, has now reinvestigated the question, operating upon a sample of duboisine received from Merck. He finds it now to consist of *hyoscine*, which would account for its great activity. —*Ber. d. Deutsch. Chem. Ges.*, 1887, 1,661.

### Note on the Specific Gravity of Wax.

**Dieterich** has pointed out that the usual method of determining the specific gravity of yellow or white wax is not reliable. Very commonly a piece is cut or broken off from a cake, and either examined at once or after being kneaded. In these cases, the specific gravity is usually found to be too low, and still lower if the wax has been kneaded for only a short time, say one minute, while a longer kneading causes it to be again a little higher. He states that very constant and reliable figures are obtained by gently melting drops off from a piece of the wax held near a flame, and allowing the melted drops to fall into water, where they must remain for twenty-four hours, so as to reach their maximum density. They are then tested by being thrown into a series of vessels containing alcohol, varying in specific gravity from 0.960 to 0.967. In whichever of these the droplets of wax remain suspended, the specific gravity of this alcohol is that of the wax.

With pure yellow wax the experiments always gave a specific gravity of 0.9625, and in the case of white wax it never exceeded 0.970. The melting point of yellow wax was found at 63.5° to 64.5° C., and the congealing point 2.50° C. lower.

The German Pharmacopœia demands that when 1 part of yellow wax is boiled with 300 parts of alcohol, not more than a very small *brownish-yellow* residue should remain.

Dieterich points out that perfectly pure wax, when thus boiled for several hours, dissolves completely; impure wax, on the other hand, leaves behind a *gray* residue.—*Pharm. Centralh.*, No. 16.

## The Alkaloids of Coca Leaves.

ACCORDING to the observations I have made in reference to this subject, I have not become acquainted with anything to support the opinion put forward by Stockman, that amorphous cocaine is a solution of true cocaine in hygrine, although the amorphous base may contain some hygrine as the result of decomposition of some one or other coca base, and though hygrine may be separated from it by continued distillation with water, owing to its gradual formation, until the whole of the amorphous base is decomposed. Since the dilute solution of hygrine in hydrochloric acid has a strong blue fluorescence, this character furnishes a means of ascertaining whether or not hygrine is present in coca leaves. For this purpose it is only requisite to moisten the finely divided leaves with ammonia, and shake with ether, then to extract the bases taken up by shaking the ether solution with dilute hydrochloric acid. When sound leaves are operated upon in this way, the acid solution obtained presents at first no fluorescence, but after a time it gradually becomes distinctly fluorescent, showing that hygrine is a product of subsequent decomposition.

Hygrine is separated from solution in acids by ammonia or caustic soda solution as a colorless oil, with a basic reaction and a peculiar odor which crude cocaine sometimes possesses. Its solutions in dilute acids present a fine blue fluorescence. The solution in excess of hydrochloric acid gives, when mixed with chloride of lime solution and excess of ammonia, only a milky turbidity, but no coloration. A solution of the hydrochlorate also gives no color when mixed with ferric chloride, with gold chloride it gives a yellow oily precipitate, and with platinum chloride a pale yellow crystalline precipitate.

As regards the amorphous portion of the coca bases which can be easily separated from cocaine, the above fluorescent character of hygrine admits of the presence or absence of this base being ascertained. The material I operated upon contained no hygrine, and it gave a platinum salt that yielded in two experiments 18.26 and 18.44 per cent of platinum, the amount of water being respectively 5.00 and 5.50 per cent. These results would correspond satisfactorily with the formula

$$(C_{17}H_{21}NO_4)_2PtCl_6H_2+3H_2O$$

according to which the amorphous base would appear to have the same composition as cocaine. It is, however, evident that this amorphous material is not homogeneous, since I was able to separate from it by fractional precipitation a well-defined base, to which I have given the name of "cocamine," but I must add that at present I have only been able to obtain this base from a small-leaved variety of coca.

This new base has the same empirical formula as cocaine, $C_{17}H_{21}NO_4$. It dissolves readily in alcohol, ether or chloroform, and on evaporating these solutions, it remains in amorphous condition. It dissolves with difficulty in petroleum spirit and in water. Dilute acids dissolve it readily, and ammonia produces in these solutions a voluminous flocculent white precipitate that appears crystalline under the microscope. The hydrochlorate of this base, $C_{17}H_{21}NO_4HCl$, is amorphous, has a neutral reaction, and is readily soluble in water and alcohol, but these solutions soon become acid. When dried at 120° C. the salt continues to lose weight, and eventually becomes no longer soluble in cold water, but communicates to it an acid reaction. On the contrary, the crystalline platinum salt $(C_{17}H_{21}NO_4)_2PtCl_6H_2+4H_2O$ only loses its water of crystallization at that temperature.

Cocamine melts at about 80° C., and it decomposes when heated a little above 100° C., or when boiled with an alcoholic solution of baryta. In this latter case, an acid is produced which crystallizes from ether in needles like benzoic acid, but does not appear to be identical with it, since the ammonia salt gives with lead acetate a white flocculent precipitate, and with silver nitrate a white milky turbidity which lasts in a remarkable way for several weeks before a precipitate is formed.

The basic product formed in this decomposition does not appear to be ecgonine, for though dissolving readily in water, communicating to it a basic reaction, and crystallizing on evaporation in long broad needles, I did not succeed in obtaining from this base the characteristic platinum salt of ecgonine. The salt I obtained dissolved readily in water and in hot alcohol, separating from the latter solution only in translucent globular masses.

In confining myself for the present to the communication of these data, I wish to add that I purpose continuing the investigation of the subject and especially that of hygrine and cocamine.—O. HESSE in *Pharm. Journ.* July 23d.

* * *

**Camphor in powder** is (according to a German patent) obtained by mixing the crude camphor with 5 per cent acid phosphate of calcium, which combines with the iron contained in the camphor as an impurity, and the mixture is sublimed in an iron retort. The vapors escape in the upper portion of a large condensing chamber furnished with an exhaust pump, and are condensed in the form of a light powder, which may also be compressed into blocks.—*Chem. and Drugg.*

## Acetphenetidin, Antithermin, and Antipyrine as Antipyretics.

ACETPHENETIDIN has been recently experimented with in the city hospital of Vienna, and shown to be an efficient antipyretic. Upon the body in health it exerts no action whatever, but in febrile affections, even small doses of from 4 to 8 grains produce a notable lowering of temperature. In full doses, it causes a fall of 2° C. (3.6° F.), and this is brought about slowly, requiring from 4 to 6 hours. No bad or disagreeable effects have so far been observed in the large number of cases in which it has been tried.

Acetphenetidin is an inconvenient name for prescribing, and, if actually introduced into medical practice, will no doubt be rechristened. It is prepared in the following manner:

Phenol is treated with nitric acid, which results in the production of both ortho- and paranitrophenols. The latter is separated and transformed into an ethyl ether, and the latter is then subjected to reducing agents, by means of which the nitrous constituent is reduced to an amide-body, the resulting substance being the ethyl ether of para-amido-phenol,

$$C_6H_4.NH_2.OC_2.H_5.$$

This latter substance has received the name *phenetidin*. When this is treated with glacial acetic acid, para-acetphenetidin is formed:

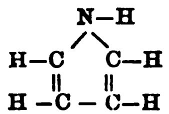
$$C_6H_4.NH(CH_3.CO).OC_2H_5,$$

and this is simply called *acetphenetidin*.

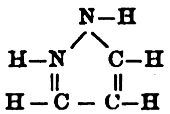
*Antithermin* is a clinical or therapeutic name of another new chemical compound which has also been found to possess antipyretic properties. It is a compound of hydrazin and levulinic acid. Whether it has a future as a medicinal agent remains to be seen.

The last-mentioned substance puts us in mind to inform our readers that the most universally used modern antipyretic, namely, *antipyrine*, is a close relation to it. In fact, Dr. Knorr, the discoverer of antipyrine, has been compelled, by a more extended study of the substance, to alter his views regarding its constitution. We quote the following abstract from his original paper contained in Liebig's *Annalen*, 238, 146 etc. (after the *Pharm. Zeitung*).

While Dr. Knorr regarded antipyrine originally as a derivative of a hypothetical base, *chinizine*, he now holds it to be a derivative of pyrazol, a body which is closely related to pyrrol.



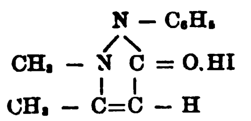
Pyrrol



Pyrazol

When phenylhydrazin ($C_6H_5.NH.NH_2$) is mixed with ethyl diacetic acid ($CH_3.CO.CH_2.COOC_2H_5$) water is separated, and an oily product is formed, which is probably phenyl-hydrazin-acetic ether, which, when heated, separates into alcohol ($C_2H_5.OH$) and a derivative of pyrazol, designated as phenyl-methyl-pyrazol.

This latter substance is the same which has formerly been called "monomethyl-chinizin." If this is treated with iodide of methyl, in solution in methyl alcohol, *antipyrine* is formed in this way, that at first one molecule of $CH_3I$ (iodide of methyl) is added. The resulting addition-product, on heating, loses hydriodic acid (HI) and hydriodate of antipyrine is formed, the probable constitution of which would then look as follows :



And from this, antipyrine is formed by the elimination of hydriodic acid, and substitution of hydrogen.

## Preservation of Soft Vulcanized Rubber.

ARTICLES made of soft vulcanized rubber, such as tubing, stoppers, etc., may be preserved by keeping them in tightly-closed tin boxes containing a sponge or bunch of matting moistened with benzin. Of course, this must not come into actual contact with the articles.

Rubber goods may be rendered more durable by coating them with a thin layer of vaseline.

Even when soft rubber goods have become rather hard, they may be restored—provided they have not become full of fissures—by coating them thinly with vaseline, and cautiously warming them over an alcohol lamp, when the first coat has been absorbed the process may be repeated.

Another method recommended for restoring hardened rubber articles is to place them into a mixture of 1 volume of water of ammonia, and 2 volumes of water, for a period varying between five and thirty minutes, proportionate to the degree of hardening they have undergone. —*Zeitsch. f. Instrumentenkunde.*

### GLASS STOP-COCKS WITH OBLIQUE BORE.

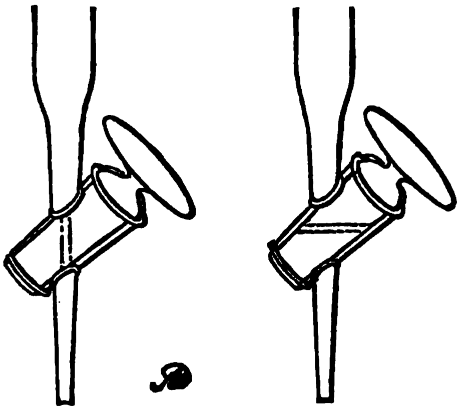
In ordinary, straight-bored glass stop-cocks, it will often happen that a gritty particle caught by the edge of the bore will be carried around the interior wall of the neck in which the stop-cock sits, and produce a faint scratch. If this happens repeatedly, a fine groove will be formed, which will eventually cause the stop-cock to leak. This is prevented by the plan adopted by Greiner and Friedrichs of Stützerbach, who manufacture stop-cocks with oblique bore. In the accompanying illustration the stop-cocks are bored obliquely, but the neck in which they turn is fused obliquely upon the burette. Some time ago, the same manufacturer described a similar kind of stop-cock, but the necks were at right angles with the burette, as usual (see our June number, page 105). If any solid particle should get between the bearings, it would be carried each time in a different direction; hence it would not be likely to gradually grind a regular groove.—*Zeitschr. f. anal. Chem.*, 1887, 48.

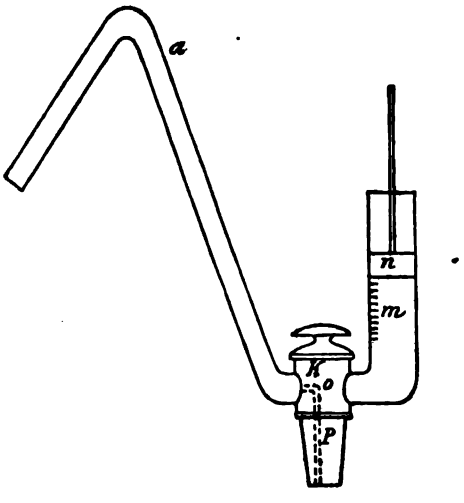
### A NEW SIPHON.

P. Raikow and N. Prodanow have devised the siphon here illustrated. The stop-cock *K* is connected, on one side, with the longer leg of the siphon proper, and on the other with a cylinder *m*, which may be graduated, and in which a piston *n* is fitted. The stop-cock is bored in two directions—diagonally across *o*, as well as downwards, *p*.

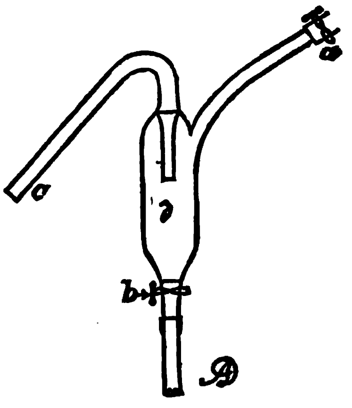
The siphon is started by turning the stop-cock so that only its diagonal bore, which connects the long leg of the siphon with the cylinder, comes into play. The short leg of the siphon having been immersed in the liquid, the piston in the cylinder *m* is drawn up until the liquid has passed over into *m*. Then the stop-cock is turned so as to bring the perpendicular bore *p* into play, when the liquid will continue to be drawn over.

The construction of this siphon also permits the accurate measurement of definite quantities of the liquid when drawn off by the siphon. All that is necessary is to have the cylinder *m* graduated. By depressing the piston, after *m* has been filled, and the stop-cock *K* has been turned so that it cannot communicate with the long leg of the siphon *a*, any desired quantity of the liquid within the capacity of the graduated portion may be forced out. —*Chem. Zeit.* and *Chem. Centralbl.*


Greiner and Friedrichs' stop cocks.



Raikow and Prodanow's siphon.



Jolles' siphon.

### A NEW FORM OF SIPHON.

A. Jolles recommends the form of siphon shown in the annexed figure. Both the exit-tube and the suction-tube are closed with stop-cocks at *b* and *a*. The siphon is started by closing *b*, opening *a*, and aspirating liquid through the tube *c* which is immersed in the latter, until the expanded portion is filled. On closing *a* and opening *b*, the liquid will continue to flow.—*Rep. anal. Chem.*, 1887, 15.

### Iodized Starch as an Antiseptic.

It being the iodine which is liberated from iodoform, subiodide of bismuth, and iodol which acts as a disinfecting agent, Mr. England advises the employment of iodized starch as a substitute. It seems to lack somewhat the power of the other agents mentioned, for the probable reason that in the case of all the others the iodine exists in the form of chemical union, and its liberation in the so-called nascent state renders it more active. In the form of iodized starch it is simply a mixture, or at most, a chemical union of low grade. The facility with which iodized starch can be prepared, however, to say nothing of the absence of disagreeable odor as compared with iodoform, recommends it for use in a large proportion of cases.

### Standardized Fluid Extract of Aconite.

Mr. Jos. K. Lilly read a paper on this subject, at the late meeting of the Indiana Pharm. Assoc., which illustrates the method used for establishing as well as controlling the alkaloidal standard of pharmaceutical preparations of vegetable drugs which are capable of being assayed. The following portion of his paper is of special and practical interest:

"Those who have had experience in titrating alkaloidal solutions by adding Mayer's solution* drop by drop, have experienced the difficulty of accurately arriving at the point at which precipitation is complete; it is this difficulty which the following method is designed to overcome:

"There has been placed before you everything necessary for a complete experiment, and I call your attention first to this solution, the strength of which is to be determined. This solution, measuring 100 C.c. represents 50 Gm. of ipecac, and was prepared by exhausting the powdered drug with alcohol by percolation, reducing the percolate to about 50 C.c., adding 100 C.c. of a 1% aqueous solution of sulphuric acid, carefully evaporating until all traces of alcohol were expelled, then adding water q. s. ad 90 C.c., adding a very little washed powered pumice stone, agitating and filtering through a plain paper filter, adding on some water q. s. ad 100 C.c. This gives us a clear solution which, if the manipulations are carefully conducted in every detail, perfectly represents the 50 Gm. of drug.

"The apparatus now necessary is, as you see, twelve test-glasses, six very small funnels with small plain filters, two burettes, one for the reagent and one for measuring the solution to be titrated.

"Now please note that we have here a solution of unknown strength of the alkaloid emetine, and the first step towards ascertaining its strength is to test a given quantity with the standard amount of the reagent, which is, that 5 Gm. of drug requires 4 C.c. of the reagent for complete precipitation of its alkaloid, hence we take 10 C.c. of this solution (representing 5 Gm. drug), and after diluting it with an equal volume of water, add 4 C.c. of the potassio-mercuric iodide solution. Allowing it to stand a few moments (in practice a much longer period), we filter off a small amount and adding a few drops of the reagent we are enabled to tell whether it is above or below standard. In this case, as you see, it runs above standard, so we take five more test-glasses and placing in each 10 C.c. of the solution and 10 C.c. water, we add to No. 1, 4.1; to No. 2, 4.2; to No. 3, 4.3; to No. 4, 4.4; to No. 5, 4.5 C.c. of Mayer's solution.

"Now, continuing the operation as in the preliminary test, we find that No. 2 yields a slight precipitate, while No. 3 gives no indication of uncombined alkaloid, so we accept as our result that 5 Gm. of drug requires 4.25 C.c.; or, if still greater accuracy is desired, a second series of tests, with amounts of the reagent running in the small fractions, between 4.2 and 4.3 C.c., might be made, but is hardly necessary.

"Accepting as our result 4.25 C.c., it is then a matter of simple calculation to determine how much fluid extract a given quantity of drug should produce. In this case the drug runs over standard; a lot of equally good quality, apparently, might run under, thus illustrating the value of a standard.

"It is very essential for the successful use of this method that all assays of the same drug should be conducted under precisely the same circumstances and conditions, such as dilution of solution, strength of acid used, and length of time allowed to elapse before filtering off for further addition of reagent. These all vary more or less in assays of different drugs, but should always be the same in different assays of the same drug.

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* Mayer's solution is prepared by dissolving 13.546 Gm. of mercuric chloride, and 498 Gm. of potassium iodide in enough distilled water to make 1 liter.—Ed. Am. Dr.

"As to the establishment of standards, the following table, showing twenty-six different assays of aconite root, will illustrate.

FLUID EXTRACT OF ACONITE ROOT.

"*Standard*—5 C.c. requires for complete precipitation of contained alkaloid 1.5 C.c. Mayer's solution. [A series of twenty-six assays is now quoted, showing the fluctuations.]

"The average of these experiments being 1.496, the standard 1.5 C.c. was adopted, and has proven to be an excellent one after three years' recognition. The manipulations in these assays were precisely as demonstrated.

"It is hardly necessary to burden this paper with detailed tables of all drugs standardized in this manner, so below all are given with the standards adopted in one table:

| DRUG. | 5 C.c. Fluid Extract requires for complete precipitation of contained alkaloid. | | | |
|---|---|---|---|---|
| Belladonna Leaves | 2.4 | C.c. | Mayer's | Solution. |
| Belladonna Root | 2.4 | " | " | " |
| Coca Leaves | 3.7 | " | " | " |
| Colchicum Root | 1.75 | " | " | " |
| Colchicum Seed | 1.75 | " | " | " |
| Gelsemium | 1.6 | " | " | " |
| Hyoscyamus | 1.8 | " | " | " |
| Ipecac | 4. | " | " | " |
| Stramonium Leaves | 2.4 | " | " | " |
| Stramonium Seed | 2.4 | " | " | " |
| Veratrum | 2.1 | " | " | " |

## Determination of Melting Points.

WHILE it is comparatively easy to determine the exact melting point of chemical substances of absolute homogeneity and purity, it is on the other hand often difficult to obtain more than approximate figures in the case of non-homogeneous substances or commercial products, as for instance, paraffin, fats in general, vaseline, etc. One cause of the variation is the lack of absolute transparency of the substance, which renders the reading of a thermometer suspended deep into the substance impracticable at or near the melting or congealing point. And another cause is the lack of a generally accepted system for determining it in such cases.

L. Weinstein, therefore, recommends to adopt as standard the system which is used in technical works, namely, to designate as *melting* point that degree of an accurately-tested thermometer at which the melted mass *begins to congeal*. Though this is not exactly correct, yet it has been customary for many years, and appears to be the only method in which personal errors can be excluded as much as possible. The congealing point is recommended because it begins at a sharply recognizable moment, and can generally be observed with the eye. In the case of paraffin and certain other bodies, moreover, the melting and congealing points are very close together, while in other fatty substances they are situated further apart. Fats being very poor conductors of heat, they are easily overheated during the melting.

In the scientific laboratory, the melting point of a substance is usually determined by introducing some of it into a capillary tube closed at one end, to heat the latter in a suitable bath, and then to read off the thermometer. This is an excellent method and is best done in the following manner: Collect some of the substance with the open end of the capillary tube, melt it, and then, by a sudden jerk, make it pass to the closed end of the tube where it will at once congeal. It is then introduced, together with an accurate thermometer, into a bath of a temperature high enough to melt the fat, the two tubes being frequently moved about so as to cause the liquid of the bath to have a uniform temperature. At the same time, the condition of the fat in the capillary tube is carefully observed. As soon as the first sign of a congelation is noticed, the temperature is read off. Successive experiments, made with different samples of one and the same substance, seldom differ by more than 0.1 to 0.2° C., provided that each was a true average sample. This is one of the chief conditions for success. And discrepancies are very often to be ascribed solely to the non-uniformity of the various samples taken from one and the same lot of a substance. For instance, in an apparently quite homogeneous cake of paraffin, only five centimeters in thickness, there were found no less than five zones, from above downwards, differing in melting point.

A good average sample may be taken in the following manner. Select a number of samples of different pieces of one lot, melt them together, stir well, and pour the mass into a square tin box (holding about 4 oz.) floating upon water. The cake in the box should have a thickness of five or six centimeters. On now pushing the open end of the capillary tube down through the mass, one may be sure to have a good average sample. [By the way, the melted cake should always be allowed to lie for several days before being used, as the melting point of many fats and similar bodies rises slightly during the first days succeeding its congelation.—ED. AM. DR.].

Weinstein rejects as entirely untrustworthy, in the case of crude fats or commercial products, the method in which a drop of mercury is observed at the moment of sinking through the melted mass, or when an electric alarm is established by means of mercury thus displaced and producing contact.

The author next cites the three principal methods which have come to his knowledge as being used and relied on in the chief industrial centres for determining the melting point of *paraffin*. They are as follows:

1. The method used at Halle (long in use): Allow a granule of paraffin to melt upon warm water, and observe at what degree of an accurate thermometer the melted drop is so far cooled that a skin forms on top of the droplet.
2. The American Method: Melt a sufficient quantity of paraffin in a beaker glass, allow to cool, and observe at what degree the mass shows the first signs of stiffening.
3. The Scotch or English Method: Melt the paraffin in a pot until it is completely melted, then stir with a thermometer until one-half of the mass has congealed again. The temperature of the mixture will remain for a short time stationary at this point. N. B. The bulb of the thermometer must always be completely covered by the melted paraffin.

The first and second of the above methods give as good results as the method by means of the capillary tube. The Scotch method yields results usually too low by about 2° C. or about 3.6° F.—*Chem. Zeitung.*

## Persian Opium.

AMONG articles of export from Persia, opium occupies the chief place. The yearly crop in and around Ispahan may be estimated at about 40,000 shahmans, equal to about 232 tons; and the planting of opium and its getting in gives occupation to a very great part of the population. The poppies are not cut before the beginning of June, and the juice is then brought to the market in copper vessels. As a rule, opium changes hands twice, and even oftener, before it comes into the hands of the exporter, and varies very much in quality, according to the soil in which it is grown—one of the most renowned districts being the village of Kupa, at a short distance east of Ispahan. London and Hong Kong are the chief customers, and the merchants prepare it according to the wants of those markets. Of late years, the planting of opium has more and more encroached on the grounds available for cultivation, owing to its yielding heavier profits to the cultivator than corn and other cereals. The quality of Ispahan opium is now much appreciated in foreign markets, and more attention is being paid to its preparation than formerly. We may take the annual exportation now to be about 2,500 cases of 10 to 11 shahmans each, which, at an average price of 200 tomans, gives the respectable total of 500,000 tomans, about £170,000. Of course prices vary very much, according to supply and demand. Last year the average price was about 21 tomans (nearly £7) for 1 shahman (13 lbs.) of prepared opium, whereas at the beginning of this year the price was 17 tomans (£5 10s.) for 1 shahman (13 lbs.), and now has risen to 19 tomans. The fluctuations in the prices are occasionally enormous. In one particular season (two or three years ago) prices rose from 17 to 25 tomans for the prepared drug, which means about 9 to 13 tomans in the raw or unprepared state. Persian opium now competes successfully with other descriptions (Turkey, Asia Minor, etc.) in London and Hong Kong, and it is a source of great wealth to this part of Persia. From Ispahan opium is also sent to Shiraz and Nezd, where it is mixed with the native drug grown in those parts, and thence exported to India and China. About a quarter of Ispahan opium is exported by English firms.

## Copying Drawings.

DRAWINGS of apparatus, plans, and indeed of any kind which are not executed in too fine lines, may be readily copied upon any kind of paper in the following manner: Place the paper upon which the drawing is to be copied securely upon the original, and dampen the paper with a cotton rag saturated with benzol. The latter is absorbed by the pores of the paper and causes the latter to become as transparent as regular tracing paper, so that the drawing will become distinctly visible through it. The latter may then be traced in the usual manner, either with lead-pencil, or ink, or India ink, or water colors, the benzol offering no resistance to any of these agents. In fact, pencil or ink-marks applied to paper saturated with benzol appear to adhere to it much more strongly than to plain paper, so much so that it is quite difficult to remove even faint pencil marks afterwards with the rubber.

If the original is large, only a small section of the paper is dampened with benzol at one time. Should the volatile liquid evaporate before the drawing below the spot has been copied, it is merely necessary to redampen the latter.

When the work is done, the paper is left exposed for a short time, when the benzol will evaporate, leaving paper and drawing as they were before.

It need scarcely be added that only rectified benzol should be used for this purpose.—*Neueste Erfind. und Erfahr.*

## APPARATUS FOR DETERMINING THE SPECIFIC GRAVITY OF SOLIDS AND LIQUIDS.

P. Raikow and N. Prodanow recommend the apparatus here described.

A glass tube *a a'*, of the form shown in the cut, has its narrow leg graduated in cubic centimeters along its upper portion, while the other leg connects with a wider tube, the bottom of which is expanded to a bulb, which latter is intended to receive the substance of which the specific gravity is to be determined. If water is poured into the apparatus, it will stand at a somewhat higher level in the narrow leg, owing to capillary attraction. (See the corresponding levels *h* and *h'* in the cut.) Supposing that enough water has been poured in the apparatus—the proper quantity being easily determined or approximated, as will be seen presently—the solid of which the specific gravity is to be taken, is let down into the bulb-like expansion *b*, whereby the water in both legs will be made to rise. On now inserting a piston into the wider tube, and pushing it down until the confined air has caused the level of water to return to the same height at which it stood before the solid was introduced, the water in the narrow limb will thereby be correspondingly raised. The number of cubic centimeters by which the column of water in the narrow limb has been augmented represents the *volume* of the immersed solid, from which its specific gravity can be determined in the usual manner, that is by dividing its weight in air by the weight of the centimeters of water representing the increase of the narrower column. Instead of water, any other liquid may be taken, if the nature of the solid, which must remain undissolved, requires it. In this case, of course, the volume of the displaced liquid must be transcalculated for water.

If the spec. grav. of a *liquid* is to be taken, the apparatus is charged with a liquid which does not mix with that to be experimented with. The level of both columns having been marked, the whole apparatus is weighed. A little of the liquid to be examined is now poured into the wide tube, the apparatus again weighed, the surface of the liquid depressed by means of the piston (as in the case when solids are involved) to the former level, the increase in volume in the other leg noted. On dividing the weight of the liquid added by its volume, the specific gravity will be ascertained.—*Chem. Zeit.*, 1886, 1,556.

## A NEW SELF-ACTING WASH APPARATUS.

A very simple and practical apparatus for the automatic and continuous washing of precipitates has been devised by A. Wahl.

A flask *A* is provided with a triply perforated rubber stopper, carrying the air-tube *F*, the inlet tube *C*, and the siphon tube *G*. The apparatus is so placed that the end of the tube *G* is over the filter to be washed. The liquid with which the washing is to be performed may be kept in a reservoir in an elevated place, or, in the case of water, may be taken at once from the service pipe, the rate of inflow being regulated by a stop-cock, or by the pinchcock *E*. The inflow of liquid through *C* is to be regulated so that the time required for filling the flask from *a* to *b* will be equal to the interval which it is desired to have between the successive refillings of the filter. Supposing water passing at a certain rate into the flask through *C*. It will gradually rise in the latter until the orifice of the air-tube *F* is covered, when the confined air will cause the water to rise in the tube *F* itself. As soon as the water in the latter has risen to the level of the bend in the siphon tube *G*, the latter will act and draw water from the flask until the orifice of the air-tube *F* is again exposed. The siphon therefore acts intermittently. The volume of liquid to be siphoned off at one time is easily regulated by raising or lowering the tube *F*, that is, by increasing or decreasing the column of liquid between the orifice of the siphon and the air-tube.—*Chem. Zeit.* and *Dingl. Polyt. Journ.*, 264, 84.

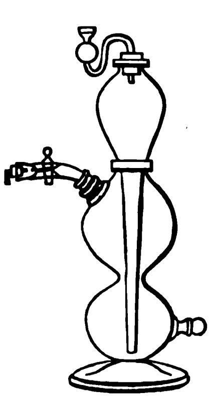
## An Improved Method of producing continuous or interrupted Currents of Gases.

The ingenious but simple method devised by Clemens Winkler for producing either a continuous or interrupted current of chlorine gas from compressed cubes prepared of chloride of lime and plaster of Paris (described in our July number, page 127) has already been extended to other gases, namely, to sulphuretted hydrogen by R. Fresenius, and to sulphurous acid gas and oxygen by G. Neumann.

### *Sulphuretted Hydrogen.*

This new method permits the employment of a sulphide, viz., sulphide of calcium, which insures the absence of arseniuretted hydrogen, a most important advantage. This sulphide may be prepared, according to Rob. Otto, in the following manner. Make a stiff paste from 7 parts of dehydrated gypsum, 3 parts of powdered charcoal, and 1 part of rye-flour, with a sufficient quantity of water, form the paste into balls or cylinders, dry them completely, and heat them to bright redness in a Hessian well-covered crucible. Fresenius recommends to triturate 4 parts of this sulphide of calcium intimately with 1 part of burned gypsum, and then to add enough water to produce a very stiff paste, which is transferred to flat, square paper-capsules and allowed to become firm. The cakes, which may be about ⅜ inch thick, are cut into cubes while still damp, and dried with a gentle heat. For laboratory purposes, these cubes answer sufficiently well, though it might be advisable to employ Winkler's method (see our July number) when making them on a large scale.

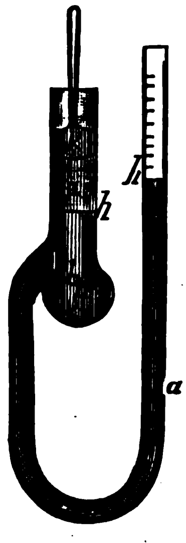
For the generation of sulphuretted hydrogen gas from these cubes, a Kipp's apparatus may be used with advantage, dilute hydrochloric acid (1 vol. of acid of 1.12 sp. gr. and 1 vol. of water) being used for decomposition. The evolution of the gas then takes place easily and uniformly. The cubes retain their shape for a considerable time. After the sulphide of calcium has been dissolved, the gypsum falls to the bottom as a precipitate. The current of gas may be regulated without difficulty.—After *Zeitschr. f. Anal. Chem.*, 1887, 339.



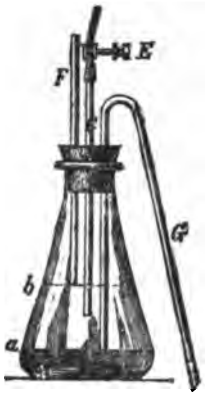
Kipp's apparatus.

### *Sulphurous Acid Gas.*

G. Neumann makes a mixture of 3 parts of sulphite of calcium and 1 part of gypsum, which is made into a paste and formed into cubes in the manner already described.



Specific gravity apparatus.



Wahl's self-acting wash bottle.

Kipp's well-known apparatus is also recommended here for the generation of gas. A charge of about one pound of the cubes can furnish a current of gas lasting for about 30 hours, crude concentrated sulphuric acid being used for decomposing the mixture. In this case it would therefore appear that the use of sulphuric acid is no disadvantage. [Winkler uses hydrochloric acid, as he found that, in preparing chlorine gas from cubes containing chloride of lime and gypsum, sulphuric acid, when it combines with the lime of the chloride and thereby produces an outside layer of gypsum, fails to penetrate the cubes completely.] Neumann, in fact, states that he finds sulphuric acid an advantage, as no gypsum collects at the bottom of the apparatus through the disintegration of the cubes. One point he draws special attention to. In order to prevent waste of gas, no more sulphuric acid should be admitted at a time than is necessary to moisten the number of cubes required to evolve the desired rate of current.

### *Oxygen.*

In the same manner, oxygen may be generated. For this purpose a mixture of 2 parts of peroxide of barium, 1 part of manganese dioxide, and 1 part of gypsum is made into a paste and into cubes as previously directed. For decomposition a dilute hydrochloric acid of the same strength as that used by Fresenius for sulphuretted hydrogen (see above) may be used.* Since there is a small quantity of chlorine given off together with the oxygen, the generated gas must be passed through a solution of an alkali.

It is not advisable, when making these cubes, to employ any starch or other adhesive substances with a view of rendering the cubes coherent.—After *Ber. d. Deutsch. Chem. Ges.*, 1887, 1,584.

These cubes will shortly be obtainable in the market here, their manufacture having already been undertaken.

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* Such an acid has the spec. grav. 1.060, and contains about 12 per cent of HCl. Using the officinal acid of the U. S. Ph., it may be prepared approximately by mixing (by weight):

| | |
|---|---|
| Hydrochloric Acid, U. S. Ph. | 4 parts |
| Water | 6 " |

## The Question of the Volatility of Glycerin.

O. **Hehner** had already on a former occasion made the statement that when a dilute solution of glycerin is heated or evaporated, the glycerin is *not* volatilized with the vapors of water. Nessler and Barth subsequently (*Zeitsch f. anal. Chem.*, vol. 21 and 23) published the results of experiments which they regarded as proof of the volatility of glycerin under those circumstances. These authors evaporated solutions containing 0.5 to 2 per cent to a syrupy consistence, and found a loss of between 2.4 and 5 per cent of the glycerin.

In the face of these statements, Hehner now maintains his assertion that glycerin does *not* volatilize with the vapor of water. He adds that Nessler and Barth's experiments show that glycerin is only volatilized when its solution is evaporated to *dryness*.

To ascertain at what point of concentration glycerin was thus volatilized, Hehner kept solutions of glycerin of known strength vigorously boiling in a covered beaker over the naked flame, continually replacing the evaporated water, so that the solutions were always as nearly as practicable of the same strength; the glycerin employed had a spec. grav. of 1.2572, corresponding to 95.55 per cent of pure glycerin. The estimations of glycerin were made by the chromate method.

From the results of his experiments [given in the original, but omitted here], Hehner feels justified in asserting that glycerin is *not* volatilized with aqueous vapor from any solution containing less than 50 per cent of glycerin. Even in a 73 8 per cent solution, the loss, if any, is exceedingly insignificant. Whatever loss, therefore, takes place on evaporating glycerin solutions must occur when the residue is nearly or quite anhydrous. It should also be remembered, says Hehner, that in his experiments the test solutions were kept at their boiling points which, in the case of the stronger liquids, was considerably above 100° C. (212° F.); the 73.8 per cent solution, for instance, boiled at 115°-116° C. (239°-240.8° F.); the escaping steam was at 100° C. (212° F.). Hence, if at 115° C., glycerin was practically non-volatile, it may be safely assumed that at 100° C. no loss whatever would have occurred.—After *The Analyst*, 1887, 65.

[Nessler and Barth's experiments have been described by us in detail in our volume for 1884, p. 206. Dr. E. R. Squibb, in a paper on "Fluid Extracts by Repercolation," published in the *Proceed. Amer. Pharm. Assoc.*, vol. 25, 717, reported that on evaporating the residue from certain fractions of a percolate containing alcohol, water, and glycerin at a steam heat, about four per cent of the glycerin present was volatilized with water and alcohol. This statement was contradicted by N. W. Lord (*Am. Journ. Pharm.*; also New Rem., 1878, 277), who maintained that glycerin was non-volatile. In the same place we mentioned the fact that we had noticed a gradual loss of glycerin in a glycerin bath which we had been using, but we did not make any special investigation of the subject. Hager, in 1877 already, had announced that glycerin is slowly volatilized when exposed to dry air in thin layers or mixed with a pulverulent body (*Pharm. Centralh.*, 1877, 89). In 1882, G. Couttalence found that when glycerin is mixed with water it loses the latter when heated for five hours at 194° F. After this, glycerin is volatilized at the rate of 0.00317 Gm. for every square centimeter of surface exposed [per hour ?]. The rate of evaporation is directly proportional to the surface exposed, and inversely to the temperature. The volatilization is increased by adding water. On page 148 of New Remedies for 1881 will be found the results obtained by Clausnitzer, who also collates the statements made by previous experimenters. On the whole, it appears that Hehner's statement is supported by a sufficient number of other careful observers.]

## Reactions of Thalline and Antipyrine.

Edmund Blumenbach has studied, under the direction of Prof. Dragendorff, the reactions of thalline and antipyrine, with a view to their recognition in the excrementitious matters of the body, or elsewhere.

*Thalline* (the sulphate was used in the experiments) is not withdrawn from *acid* aqueous solutions by shaking with petroleum ether; only traces are removed by benzol, chloroform, and ether. From alkaline, ammoniacal solutions only a little passed over into petroleum ether; more into benzol, chloroform, and ether. Urine does not require any preliminary treatment when thalline is to be isolated; all that is necessary is to supersaturate with an acid, and then to shake with petroleum ether; then to supersaturate with ammonia and to shake with benzol. From 100 C.c. of urine as little as 0.001 Gm. ($\frac{1}{64}$ gr.) of thalline could still be extracted, enough to apply the reactions below named.

Pure urine does not contain any constituent which could be confounded with thalline, if the more important reactions are taken into consideration.

The most delicate reaction of thalline is the production of a green color with ferric chloride, which is still distinct in a dilution of 1 : 10,000, and still recognizable in one of 1 : 100,000. Chloride of gold also produces a green color, which is still distinguishable in a dilution of 1:100,000. A green color is likewise produced by nitrate of silver, chromic acid, chlorine water, mercuric oxide, chloride of lime and ferricyanide of potassium; but the two last-named reagents must be employed in acidulated solution. Aqueous solution of iodine, and solution of iodine in iodide of potassium color thalline solutions dark-brown, then muddy-green; platinic chloride produces a yellowish-green; fuming nitric acid and warming, a red color. The latter is also observed when concentrated sulphuric acid is poured upon dry thalline, and nitric acid then added; or else, when the vapor of fuming nitric acid is made to act upon thalline. Sugar and concentrated sulphuric acid furnish a red mixture with thalline; vanado-sulphuric acid dissolves it with a green color. Solution of stannous chloride, also phosphotungstic acid form a white precipitate in thalline solutions. With potassio-bismuthic iodide the precipitate is orange-red, with potassio-mercuric iodide yellow, with potassio-cadmic iodide pale rose-colored, with nitroprusside of sodium greenish blue, with picric acid yellow, with phosphomolybdic acid greenish-yellow. On warming with dilute sulphuric acid, the last-named precipitate is greenish-blue. Some of the last-quoted reactions are not very sharp, a few of them being recognizable only in solutions containing at least one per cent of thalline.

Experiments with animals showed that after a full dose of thalline, the urine showed the dark coloration first described by Jaksch; but reaction for thalline could not be obtained when less than 0.5 Gm. (8 gr.) had been given by the mouth. The *reddening* of the thalline urine with ferric chloride (Jaksch's reaction) is best obtained by first precipitating from a few C.c., of urine the phosphoric acid by means of a drop of dilute ferric chloride, then filtering, and adding more ferric chloride to the filtrate. One of the decomposition products of thalline may be separated from the *acidulated* urine by shaking with petroleum ether, benzol, etc. This product is colored *green* by ferric chloride, the same as the original thalline.

*Antipyrine* is mostly used as free base. From its *acid* solution it does not at all pass over into petroleum ether, but slightly into benzol, more readily into chloroform. From its *ammoniacal* solution it is withdrawn by benzol, chloroform, or amylic alcohol. When mixtures are to be tested for antipyrine, the properly prepared aqueous solution is first purified (of fat, etc.) by shaking with petroleum ether, the solution then rendered alkaline with ammonia, and the antipyrine extracted with chloroform. In mixture with urine, blood, etc., quantities of 0.005 Gm. ($\frac{1}{12}$ grain) could still be detected distinctly, 0.001 Gm. ($\frac{1}{60}$ grain) being about the limit. Neither normal urine nor blood contain any substance which could be confounded with antipyrine.

Antipyrine is best recognized by its forming a dark reddish-brown color with ferric chloride, clearly visible in solutions containing 1 in 100. In dilute solutions 1: 100,000, a light brown, and in such of 1:500,000 a light yellow color is observed. The iron reaction succeeds better in neutral than in acid solution. A solution of antipyrine when mixed with concentrated sulphuric acid and a little fuming nitric acid, turns dark red on warming; with vanado-sulphuric acid, green. Dry antipyrine assumes a fine dark red color with fuming nitric acid. In 1 : 1,000 solutions of antipyrine, iodine and iodide of potassium produce a reddish brown, potassio-mercuric iodide or potassio-cadmic iodide a white, potassio-bismuthic iodide an orange red precipitate. In acidulated solutions, 1:100, Nessler's reagent, mercuric or auric chloride, tannic or phospho-molybdic acids produce colorless or yellowish precipitates, picric acid yields a yellow, platinic chloride an orange, ferrocyanide of potassium a bluish green precipitate.

Antipyrine is rapidly absorbed, and cannot always be detected in the urine. It is much more resistant to change than thalline, and there is no proof that it is decomposed in the organism.—After *Zeisch. f. Anal. Chem.*, 1887, 405.

## More New Elements.

The investigation of the so-called "rare earths," which has engaged the attention of Lecocq de Boisbaudran, Crookes and other investigators, has rendered it evident that several of the bodies which had so far been regarded as elements were themselves compound, or two or more elements. In this way, some four or five of the supposed elements of the "rare earths" have been made out already to contain perhaps ten or twelve different elements, the nature of which has, however, not yet been determined chiefly because the material from which they can be obtained is only of rare occurrence, and because the separation of the several bodies is excessively difficult and tedious, owing to their great similarity. The spectroscope, however, furnishes the chief guide in ascertaining the claims of any of the bodies to the title of an element.

Gerhard Krüss and L. F. Nilson have recently studied five of these bodies, namely, Ermium, Holmium, Thulium, Didymium, and Samarium, and have shown conclusively that none of these can be regarded as elements. In fact, it appears from their investigations that not less than about twenty new elements will have to be assumed to take part in their constitution.

### The Preparation of Pure Valerianic Acid.

In the course of investigations on the fatty acids pre-existing in butter, E. Duclaux has felt it necessary to be in possession of some absolutely pure valerianic acid.

This acid is usually obtained by the oxidation of amylic alcohol. But the products of this oxidation are variable, as they depend upon a complex mechanism not always the same, no matter what oxidizing substance may be employed. If, however, permanganate of potassium is used, the study of the process or products becomes easy.

In presence of permanganate of potassium, and in the cold, amylic alcohol is oxidized to valerianic acid. But the latter, though more stable than the substance it originated from, does not yet possess a very great stability, and may, in its turn, be converted into acetic acid. And even the latter, though the most stable of the whole series, may eventually be converted into water and carbonic acid gas.

If, at the beginning of the process, the amylic alcohol is not added in excess, and the valerianic acid, first formed, meets with undecomposed permanganate, it descends in the scale of oxidation, and the products will be very variable and impure.

For instance, if in presence of 100 Gm. of permanganate, in concentrated solution, less than 10 Gm. of amylic alcohol are employed, only very faint traces of acetic acid will be produced, and no valerianic acid whatever. With 20 Gm. of the alcohol, the yield will be about one equivalent of acetic, and 3 equivalents of valerianic acid. With 40 Gm. of the alcohol, about 10 equivalents of valerianic acid will be obtained against 1 equivalent of acetic. [The term equivalent is used here by the author evidently in the meaning of "parts" or "proportional parts," irrespective of the absolute quantity of the product.] If more than 40 Gm. of amylic alcohol is used, some of it will remain undecomposed at the end of the operation, but the proportion between the valerianic and acetic acids will be about 40 parts of the former and 1 part or less of the latter.

In the last-mentioned proportion, the oxidation becomes more rapid and even excessive, which is evident from the heat generated in the mixture. But heat must be guarded against, as this renders the control of the rate of oxidation impossible, so that almost the only stable product obtained is acetic acid.

In order to be successful, therefore, it is necessary to employ an excess of amylic alcohol, and to operate in the cold. But, in spite of all, the production of a little acetic acid cannot be entirely prevented.

This impurity would be very annoying, if it were not easy to separate them by distilling their dilute solutions. Valerianic acid, when distilled in dilute solution, passes over almost entirely in the first quarter of the volume subject to distillation, while the acetic acid does not pass over (except in traces), but becomes more concentrated in the retort. It is, therefore, possible to separate them by one, two, or more rectifications, and to obtain valerianic acid of absolute purity, or nearly so.

Acetic acid is always produced together with valerianic acid produced from alcohol oxidized by any means; it is also formed [alongside of valerianic acid] when valerian root is treated with oxidizing substances, but in this case it is also accompanied by formic acid.—*Comptes Rend.*, CV., 171.

### Prospective Taboo of Salicylic Acid in France.

The long-discussed question whether salicylic acid, as a preservative of articles of food or drink, is injurious to man, is likely to be soon officially settled in France, where a Commission, appointed by the Academy of Medicine, at the request of the Minister of Commerce, and composed of prominent physicians and chemists, such as Berthelot, Bergeron, Roussel, Proust, Brouardel, Vallin, and others, has just submitted a report, in which it is declared that the daily and long-continued use of even small doses of salicylic acid has been demonstrated, by medical observation, to be able to produce evil effects in feeble and sick persons, and that the use of salicylic acid as a preservative of food or drink should therefore be forbidden.—*Bull. de l'Acad. de Méd.*

### Examination of Butter Colors.

The solution of the butter fat in ether is shaken with a solution of potash or soda of such dilution as to be only just alkaline when separated from the fatty layer after a few hours. Annatto and saffron may be looked for in this extract. With sulphuric acid, annatto strikes first a blue or violet-blue, then a green, and finally brownish or somewhat violet color. These changes of color are important, as pure butters have been known to give a green coloration, but always without the preceding blue. Turmeric is easily recognized by the action of the alkaline solution.—H. B. Cornwall in *Chem. News.*

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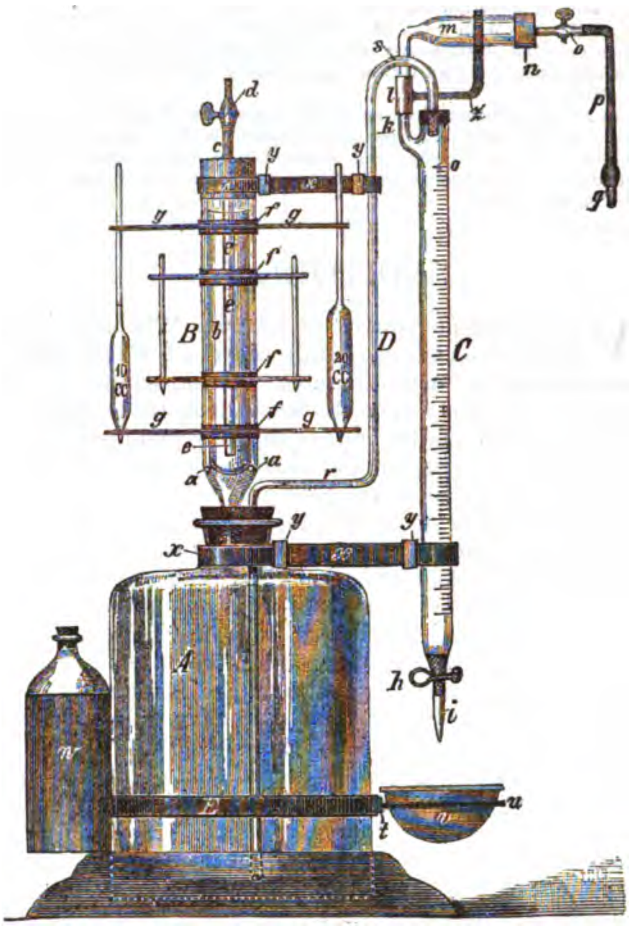
**Bentley's Successor** as Professor of Botany at the School of the Pharmaceutical Society of Great Britain is Mr. Joseph A. Green, B.A. (Cantab.), B.Sc. (Lond.), who was elected to this office on August 3d.

### A COMPACT VOLUMETRIC APPARATUS.

An apparatus, combining every requisite and utensil for the use of one and the same volumetric liquid, has been constructed by Friedrich Larssen, of Riga. This may, perhaps, be too complicated a contrivance for every kind of volumetric solution that is usually kept in stock, but it certainly appears of great advantage when one and the same liquid is to be used frequently. One chief advantage of the apparatus is this, that the reagent cannot be affected by the external air, as the latter is compelled to pass through a washing liquid before entering the apparatus.

The arrangement of the different parts is sufficiently intelligible from the cut, without a detailed description. A solid block of wood holds the large bottle forming the reservoir of the reagent. Metallic clamps at *e*, *x*, *f*, *z* hold in position the various accessories. *B* is a tube intended to hold the liquid for washing the air, which will vary according to the nature of the reagent in the bottle. For instance, if the latter is standard soda, the washing liquid may be a solution of potassa (to absorb $CO_2$ and acid vapors). The tube *B* is closed by a stopper carrying the stop-cock tube *c*. The burette has a special form, the use of which will be understood from the following.

After the reagent bottle has been filled, the tube *B* fitted upon it, and all the connections made as shown in the cut, the apparatus is ready for use at any time. It is started by opening the stop-cocks at *d* and *o*, then applying gentle suction at the mouth-piece *g*, connected by flexible tubing with *o*, whereby liquid from the reservoir will be drawn over into the burette. Any excess of liquid, rising above the mark 0, is allowed to flow out through the stop-cock at *i*. As soon as the burette is filled, the stop-cock *d* is closed, and only that at *o* is left open.



Larssen's volumetric apparatus.

[This we consider the only objectional part of the apparatus, as it will permit the entrance of unwashed air. We would either make the cylinder *B*, by a slight alteration of construction, answer for both purposes, or we would attach a second washing cylinder to the tube *m*.—*Ed. Am. Drugg.*]—After *Zeitsch. f. Anal. Chem.*, 1887, 333.

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**Pharmacy in the Brussels Exhibition.**—At the thirty-fourth grand international exhibition of science and industry, which will be held in 1888 in Brussels, pharmacy will, for the first time in this series of exhibitions, constitute a separate section. One feature of this section is intended to be a retrospective display of the materials of the old alchemists, and the loan of such objects is invited. Modern pharmacy will also be illustrated in its apparatus and products. The chairman of the section is Louis Créteur, the secretary Victor Ruling.

THE

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## EDITORIAL.

AT the recent meeting of the National Wholesale Druggists' Association, a full report of which will be found elsewhere in this number, the importance and influence of this body upon the whole drug trade, upon the movement and quality of drug supplies, and upon legislation relating to drugs and kindred subjects, became even more apparent than it had been previously. The character and standing of the members, and their constantly increasing numbers, must command the attention and respect of every legislative body, whether of a local or a general character. It is to be expected, therefore, that the interests of the whole drug trade, in which many millions are invested, will be carefully studied and promoted, whenever proper representations are made to the law-making bodies. We had hoped that *one* subject, above all others, would be included among the resolutions passed at the meeting, viz., the abolition of the tax upon alcohol used in the arts; but, while this matter was ably brought forward in the report of the Chairman of the Committee on Legislation, it was not formally acted upon. We think that no effort should be spared to bring about this desirable result in the future, and we earnestly hope that the subject will receive renewed attention at the next meeting. Meanwhile, it would be of advantage to invite the co-operation of scientists to propose new methods of rendering alcohol unfit as a beverage without injuring its solvent powers, so that one may perhaps be found which will render the recovery of the pure alcohol from the mixture practically impossible, for it is this, after all, upon which the success of the movement will have to depend.

JUST before going to press, we are in receipt of a pamphlet from one of our correspondents abroad, containing a prize-essay by Dr. Paul Zipperer on Cacao and its preparations, which contains, among other valuable matters, a new and simple method of determining melting points of fats. As this appears to have yielded very uniform results in the hands of the author, we quote it here as a supplement to the article on page 166 of this number:

A small capillary tube, open at both ends, is introduced with one end into the melted fat, until a drop of the latter has entered it. It is then withdrawn and, when the fat has congealed, laid aside for at least three days, in order that the fat may attain its constant melting point, which is always lower immediately after its congelation than some time afterwards. The tube is then attached to a thermometer by means of a rubber ring, and at such a height that the column of fat shall be exactly level with the middle of the bulb of the thermometer, and the two together are placed upright into a suitable vessel containing water which is being slowly warmed. The water can enter the tube only from below. The author now recommends to regard that point of the thermometer as the melting point of the fat, at which the latter is pushed up in the capillary tube in consequence of its melting by the warm water entering from below.

WE do not know whether the United States Consul at San Salvador, Mr. L. J. DuPrê, has made very extended experiments with *coca* on himself, or whether he describes the experience observed by others in his recent report on the subject, published in the reports from the Consuls of the United States, No. 78, May, 1887. As he does not state that his information was derived from others, we might be justified in surmising that he speaks from personal experience, though we have no doubt that he has his information from second hand, or he would not have used the exaggerated terms which we print in italics:

"The immediate effect of chewing coca is perfect insensibility of the interior of the mouth. The immediate sensation is that which one would experience when finding that his mouth had become a great void in somebody else's head. I had a dentist apply it when extracting the roots of a molar tooth, and the effect was as described. Indians constantly using coca finally lose the senses of taste and smell. They can eat, without repugnance, most disgusting food, and drink most nauseating draughts. The sensitiveness of the mucous membrane has been destroyed.

"When one goes further, and swallows the saliva impregnated with the juice of the coca leaf, *a delicious sensation of warmth and of perfect blessedness pervades one's whole being, intellectual, nervous, and physical, and he is lapped in the joys of an elysium.*

"Taken into the stomach it certainly retards digestion, but begets no inflammation, not even when used constantly. Its action, it seems, is restricted to the nervous system.

"To this healthful action of coca upon the organs of assimilation of food or beverage, and to the chemical and nervous or electrical action of coca, physicians here ascribe the perfect soundness of the teeth of the Indian *coqueros*. The oldest coca eaters have perfect teeth. Sadly worn away they may be, but caries, of which dentists prate so volubly, is unknown.

"The Indian *coquero's* (coca eater's) capacity to endure hunger, or rather the want of food, when furnished with coca properly prepared, is surely extraordinary. Perhaps it neither supplies nourishment nor appeases hunger. It seems rather, as a scientist states, to 'silence the voice of hunger' and still the yearnings of the stomach. The nerves conveying to the brain sensations of hunger or of emptiness are stilled to perfect repose. The hollow voice of the void within is silenced; it is made inaudible. Dr. Morens says, 'coca deceives hunger. If the toiling *coquero* does not eat it is because he thinks he eats.' In fact, as soon as the influence of coca is exhausted and the supply wholly withdrawn, the Indian eats ravenously. His stomach, unlike that of the sober drunkard after a terrible debauch, at once discharges its proper functions perfectly. Coca, it seems, only retards digestion and organic combustion.

"In doses of 15 to 60 grains coca produces delightful intoxication. *Its joys transcend in perfect blessedness all known human delights. A sensation of lightness first supervenes; the air inhaled is zephyrs from angels' wings; there are wild imaginings and fantastic hallucinations and gorgeous visions, and then complete insensibility. It is intoxication without drowsiness, without congestion of the brain, involving a sense of perfect rest. The law of gravitation is suspended, and the coquero drifts bodily among the stars.* Meanwhile, the muscular system is stimulated to an extraordinary degree; an intellectual excitement supervenes, enabling the 'possessed' of this demon to watch and toil through sleepless days and nights. No dreadful headache or more intolerable nervous prostration follows, *The discovery of these facts has induced a few Americans—white people—to test the virtues of coca as a substitute for whiskey, and I am pleased to say they like it.* In at least one instance, when taken in very large quantities, there followed great acceleration of pulse beats and of respiration. There were convulsion of the muscles, persistent insomnia, suppression of thirst and hunger, and diminution of secretions of the skin and kidneys. . . . 'Cocaismo'—habitual intoxication by use of coca—more easily becomes habitual and incurable than alcoholism or addictiveness to opiates. Its consequences are, however, not yet wholly measured or comprehended. Excessive and constant use of this intoxicant begets, rapidly, moral and intellectual degradation and decay. . . ."

We fear the picture of the stage of bliss and beatitude drawn by the author as produced by coca is a little too highly colored, and is liable to induce persons of ill-balanced mind and of morbid desires to make still more extended experiments with this supposed new *hashish* than is already the case.

### Correction.

A SUBSCRIBER at Savannah, Ga., has drawn our attention to an error in the article "Composition for Removing Ink Stains," on page 103 of our June number. The total quantity of liquid amounts to more than two quarts, and the whole of it is directed to be put into a quart bottle. This should read "gallon bottle" or "bottle of sufficient capacity."

**Pennsylvania.**—The lately-organized Board of Pharmacy has elected the following-named officers: Alonzo Robbins, of Philadelphia, president; H. B. Cochran, of Lancaster, secretary; F. H. Eggers, of Allegheny City, treasurer.

There is to be a celebration in Philadelphia on the 17th of September of the centenary of the signing of the Constitution of the United States of America.

**Connecticut.**—Dr. Sevin, of Norwich, has been appointed by Governor Lounsbury to the vacancy on the State Board of Pharmacy.

**California.**—At a recent meeting of the California Pharmaceutical Society, Mr. J. Dawson exhibited a specimen of the first glycerin made in California. It was made by the Huether Brothers.

**New Jersey.**—The following-named candidates have been registered by the State Board of Pharmacy: Joseph Hart, P. C. P., 1881, Cape May; Randolph H. Deunes, P. C. P., 1886, Cape May; Mason W. Zimmerman, P. C. P., 1886, Cape May; William H. Sutton, P. C. P., 1887, Philadelphia; John F. Potts, P, C. P., 1887, Atlantic City; W. Charles Ness, National C. P., 1886, Asbury Park. The following were examined and passed: Gustav Pichel, Newark; Alex. M. Levia, Newark.

**Nebraska.**—The following-named druggists passed an examination before the State Board of Pharmacy: Edward W. Bexton, Grand Island, Neb.; J. Cecil Cornwell, Crete, Neb.; Henry R. Gering, Omaha, Neb.; Fred. W. Richter, Omaha, Neb.; The. A. Helmig, Columbus, Neb.; Fred. W. Picks, Omaha, Neb.; Fred. E. Hagin, Ansley, Neb.; A. H. Jester, Palmyra, Neb.; A. J. Shaul, Keswick, Ia.; John B. Gaffney, Nelson, Neb.; W. B. Kern, Cairo, Neb.; J. A. Halduman, Omaha, Neb.; P. E. Norwood, Homer, Neb.; J. T. Burk, Dennison, Ia.; August Rice, Hastings, Ia.; R. U. Walton, Valley, Ia.

Twelve candidates failed to meet the requirements.

**Michigan.**—A recent amendment of the pharmacy law does away with the "five-mile limit," and establishes a grade of "assistant." It, moreover, provides for the registration, without examination, of those who can prove that they had been actually engaged in the drug business for three years, but had failed to register before Decem-18th, 1885.

**Dakota.**—The North Dakota Pharmaceutical Association met at Fargo on the 2d of August, Mr. J. W. von Weida presiding. Within the year which has elapsed since its organization, it has acquired two hundred members, and secured the enactment of a State pharmacy law. The newly-elected officers are: A. B. Bennett, of Devil's Lake, president; H. L. Haussamer, of Grafton, secretary; and E. C. Maxey, of Fargo, treasurer. The next meeting will be at Jamestown on the first Tuesday of August next.

The State Board of Pharmacy considered applications for registration on the 4th of August, rejecting 304 out of 379 candidates for registration under the permissive clause, and 6 out of 25 candidates for registration by examination.

C. Y. Durand, a prominent druggist of Huron, Dak., died August 5th from the effects of a strangulated hernia.

**North Carolina Pharmaceutical Association.—Owing to an unfortunate irregularity in the running of trains, in consequence of damaging rains, the meeting at Asheville, on Aug. 3d and 4th, was poorly attended. Only necessary** routine business was hurriedly transacted. The Association held three short sessions, and adjourned to meet in Goldsboro on second Wednesday in August, 1888.

The officers and committees elected and appointed are as follows: *President*, F. W. Hancock, of New Berne; *Vice-Presidents*, T. D. Crawford, of Oxford; W. C. Carmichael, of Asheville; W. H. Wearn, of Charlotte; *treasurer*, A. S. Lee, of Raleigh; *Secretary*, E. V. Zoeller, of Tarboro; *Local Secretary*, H. C. Shannon, of Goldsboro; *Executive Committee*, H. H. Lyons, of Asheville; D. L. Adams, of Raleigh; J. H. Hardin, of Wilmington; D. Herring, of Wilson; W. H. Turman, Jr., of Louisburg; S. O. Smith, of Charlotte; E. V. Zoeller, ex-officio of Tarboro; *Committee on Papers and Queries*, D. Herring, of Wilson; J. S. Grant, of Asheville; W. H. Wearn, of Charlotte; *Business Committee*, John H. Hill, of Goldsboro; W. H. Turman, Jr., of Louisburg; V. O. Thompson, of Winston; *Delegates to Am. Pharm. Assoc.*, Wm. Simpson, of Raleigh; E. V. Zoeller, of Tarboro; S. J. Hinsdale, of Fayetteville; A. W. Rowland, of Wilson: T. B. Hill, of Goldsboro.

**Illinois.**—At the twenty-third annual exercises of the Chicago College of Pharmacy, held August 4th, addresses were delivered by G. P. Englehard, Prof. H. D. Garrison, and, in behalf of the graduating class, by W. M. Jewell. A degree was conferred upon Alfred N. Boe, Charles E. Boddiger, Louis Brinkman, Herman R. Cunradi, Otto Doerrlamm, A. Emil Hiss, William M. Jewell, Emma Kauffman, Charles J. Lapp, Florence M. Oliver, Samuel A. Slater, Chas. F. Smith, Frank B. Stephens, J. Arthur Thomas.

The senior prize was awarded to A. E. Hess, and the junior prize to E. A. Sayre.

Two members of the class, it will be noted, were women.

The limit of time within which registration may be acquired under the pharmacy law without further payment has been extended to December 31st.

The last issue of the Chicago directory states that there are 450 drug stores in the city.

The following State law is now in force:

"No person shall sell, pay for, or furnish any cigar, cigarette, or tobacco in any of its forms to any minor under sixteen years of age, unless upon the written order of parent or guardian. The penalty for each offense is $20."

**Prizes.**—The French Society of Photography offers the following prizes: One of 2,000f., presented by the Minister of Public Instruction, for the improvement of objectives; 1,000f., presented by M. Davanne, for a greater sensitiveness of plates; and 500f., by M. Gaillard, for the best pellicular process. The memoirs must be sent to the society before the end of December, 1888.

The Academy of Sciences has been authorized to accept a bequest of 40,000f., made by M. Martin-Damourette, for the purpose of founding a yearly or biennial prize to be awarded for researches on therapeutic physiology.

**Pasteur was**, on July 18th, elected a perpetual secretary of the Academy of Sciences, for the physical and natural sciences division, in place of the late Dr. Vulpian. The academy has two perpetual secretaries, whose influence is very great, as they prepare the work of the sittings, read the communications, and to a certain extent direct the proceedings. The other secretary is M. Bertrand, for the mathematical sciences division.

**Dr. C. G. Wittstein,** for many years one of the most active and productive authors on the field of pharmaceutical literature, died on June 2d, at Munich, where he had resided and labored during fifty-one years of his busy life. We have given his detailed biography, with portrait, in the June number of NEW REMEDIES for 1881. As a supplement to the list of his literary works there given, we have to add his German translation of the Natural History of Pliny, upon which he had been engaged many years, and which exhibits great care and familiarity with the different branches of natural history, though it suffers from the fact that the translator did not make use of the more recent critical editions of the text. He has had a large number of pupils from all parts of the world, with many of whom he kept up an active correspondence. His death is regarded as a great loss to the profession.

**The Hungarian Pharmacopœia,** of which the first edition appeared in 1871, has been revised by a committee appointed by government, and the manuscript of the new revision has been completed. The work will be issued during the latter part of this year. It is much to be regretted that the particularistic feeling of the Hungarian nation does not seem to make it feasible to bring uniformity or at least a greater harmony into the two pharmacopœias of the Austrian Empire. The Austrian pharmacopœia is at present being likewise revised by a government commission. How much better would it have been had both commissions worked together, at least to agree on the main features. It is hardly likely that the two contiguous countries, Austria proper and Hungary, require such different drugs or preparations as to make two separate pharmacopœias necessary. Of course, those who know the history of the political parties in Hungary, and have watched their movements, will recognize the apparent impossibility of bringing about a fusion of the two works. We should, indeed, not be surprised, if other sections of the empire were to demand autonomy in pharmacopœial matters, so that we might hereafter hear of a Bohemian, Slavonian, etc., pharmacopœia. The chairman of the International Pharmacopœia Commission, Baron Anton von Waldheim, who is a very prominent pharmacist in Vienna, has still a chance of using his influence to bring about a close approximation between the two works before they are published. If this is found impossible in the very home and native country of the chairman, its eventual success in other countries is not likely to be realized.

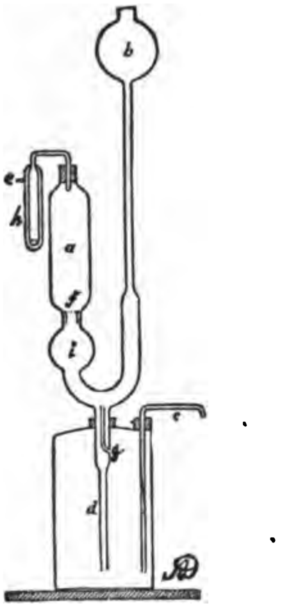
## APPARATUS FOR THE GENERATION OF A CONSTANT GASEOUS CURRENT.*

THE principle usually underlying the construction of gas-generators is this, that the acid setting the gas free is forced back into a receptacle when the exit of the gas is closed, and does not flow back until the gas is again allowed to escape from the apparatus. One disadvantage of this arrangement is this, that the acid gradually becomes specifically heavier and less prone to act upon the solid substances.

The apparatus designed by Chr. Steenbusch, and illustrated in the accompaying cut, removes this objection.

The solid substance which evolves the gas or causes its evolution when the acid comes in contact with it—for instance, a carbonate for the production of carbonic acid, sulphide of iron for hydrosulphuric acid, zinc for hydrogen, manganese dioxide for chlorine, etc., etc.—is placed into the reservoir *a*, the bottom of which is closed by a glass-diaphragm *f*.

At this place, the reservoir is contracted into a neck, and below this expands into a globe *i*, intended to receive the accumulated gas when the exit from the apparatus, at *e*, is closed. At the lowest point of the curve, a tube *d* extends downwards, and is fitted into the neck of a Woulff's bottle. This tube *d*, however, has a small tube fused inside of it, opening at *g*, by means of which communication is established between the *upper* part of the Woulff's bottle and the reservoir, together with its lower U-tube. To the neck of the reservoir is attached a small washing apparatus *h*, so arranged that the gas passes only through a small portion of liquid, so that, in case of any back-pressure, the wash-liquid will not be aspirated back into the reservoir. At *e*, a rubber tube with pinch cock is attached, to control the exit of the gas.



Steenbusch's current generator.

Supposing hydrosulphuric acid gas is to be generated. In this case, *a* is filled with pieces of sulphide of iron, and moderately dilute sulphuric acid is poured into *b*, until the latter is half filled. The acid will flow into the Woulff's bottle through *d*, while the air contained in it will escape through *g*, and, by inclining the apparatus, the whole of the air contained in it may be allowed to escape. As long as the exit for the gas is closed, the acid will not be able to enter the reservoir *a*, but when the exit is opened, acid will flow into it and act on the sulphide. The generated hydrosulphuric acid gas will pass through the wash-bottle and escape by the tube attached to *e*. When the outlet is closed, the confined gas will depress the acid from the reservoir, and the dense solution, partly saturated with ferrous sulphate, will descend through the tube *d* into the bottom of the Woulff's bottle [only a small fraction probably finding its way through the narrow interior tube *g*]. As the partly-saturated acid flows down, fresh acid will take its place by rising through the interior tube *g*, and whenever the outlet is opened again, the current of gas will be re-established at its former rate. This interchange of spent and fresh acid goes on also while the apparatus is working, the two currents, both ascending and descending, being easily observable.

When the acid is all spent or saturated, it may be easily removed by siphoning it off through *c*.

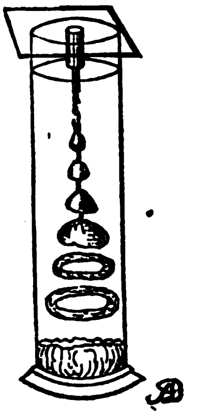
When using the apparatus for the generation of hydrosulphuric acid, it is advisable to wash out the reservoir *a* occasionally, say after about 12 oz. of sulphide of iron have been consumed in it, as the insoluble matters left by the crude sulphide of iron are liable to cause considerable foaming.

If the apparatus is to be used for the generation of chlorine gas, a soft lead tube is closely coiled around the reservoir *a*, and a current of steam, either taken from the steam-supply or generated from a flask containing boiling water, passed through it. This heats the water sufficiently to establish and maintain the reaction.

When the apparatus is charged for producing chlorine and the current of chlorine gas is to be shut off, it is necessary to first drive over the acid, by internal pressure, into *b*, and then to close the orifice of the latter hermetically by a tight cork, so as to retain the column of acid, after which the delivery tube at *e* is again opened and left so. If this is not done, the confined liquid might absorb the chlorine gas remaining in the apparatus and pass over into the wash-bottle.

## EFFECTIVE DEMONSTRATION OF THE CURRENT OF A SALINE SOLUTION THROUGH A LIGHTER LIQUID.

THE well-known fact that a denser solution will sink through a lighter liquid, upon which principle depends, among other things, the process of so-called superior maceration, that is, the solution of a substance by suspending it at or just below the surface of a column of its solvent, may be very effectively demonstrated in the following manner: Upon a rather large glass cylinder filled with water is placed a glass plate, to the under surface of which is affixed a piece of a wax candle bearing at its end a large crystal of permanganate of potassium. The crystal should be fastened vertically and should project about 10 millimeters (⅜ inch) into the water. At once there will descend from it a thin, red string, upon which will be formed, in consequence of the friction against the surrounding water, globular expansions, which gradually grow to a bell-shaped formation, and finally are converted into handsome, whirling rings, frequently passing through each other. The process will continue for an hour or thereabouts.—F. C. G. MÜLLER, in *Chem. Centralbl.*, 1887, 446.



Current of a saline solution through lighter liquid.

### Anise in Assam.

ANISE and star anise are found in abundance in Assam, the one under the name of *mahori*, the latter under that of *badian*. Among the low hills round Gowhatti, and in the forests of the Khassia and Naga Hills, sufficient seedlings of anise for stocking can be easily procured, but considerable care is required in transporting them, and this should be done during the cold weather, the plants lifted with as much earth round the roots as can be conveniently carrried. As the object with anise is to obtain as luxuriant a foliage as possible, high cultivation and copious manuring should be resorted to; the plant may be put in four feet by four feet, the same distance as tea, but if the district in which the plantation is situated is more than ordinarily subject to visitations of blight and red spider, it will be prudent to plant somewhat wider, say five feet by five feet; for the quality of the oil will be adversely affected by the presence of diseased leaves. Anise leaves should be gathered like tea, and plucking takes place in dry weather only. The leaves may be subjected to a light rolling, so as to break the cells, and the oil pressed out or extracted by distillation. The oil may be shipped in small casks or bottles, the latter being always easily procurable in the growing districts.

For the cultivation of star anise or badian, a manure containing a high percentage of phosphates, such as limestone, bones, or animal offal, answers best. The seeds, or rather fruit, is of course the principal product, but the bark of the badian is almost equally rich in aromatic constituents. Both seed and bark may be lightly crushed and infused in alcohol or distilled in the usual manner. The flavor of anise preparations is so pungent that the house set apart for their manipulation should be kept distinct from all buildings devoted to other manufactures, and the people employed in the anise business should be retained for that special purpose. Natives are proverbially careless, so that strict vigilance to prevent interchange of the tea and aniseed baskets must be specially guarded against. Scented tea is all very well in its way, but impregnated with the powerful odor of anise it would find scant favor either with dealers or the general consumer.—*Chem. and Drugg.*

### Serkys Tea.

MR. J. R. JACKSON, of Kew, has published a note in the *Gardener's Chronicle* on a medicinal tea which has attracted some attention of late under the name of "Serkys tea," it being said to improve digestion and clear the complexion, prevent skin diseases, etc. An infusion of the broken leaves was found to have the odor and flavor of sage, and seeds of a species of Chenopodium (*Ch. ambrosioides*) were detected by Professor Oliver. The preparation appears to vary in composition, since a sample, examined by the writer, had a distinct flavor of green mint. Serkys tea, according to a well-known Turkish scholar, means simply St. George's tea.—*Pharm. Journ.*

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* Abstract of a paper in *Jour. der prakt. Chem.*, 35, 364, by Chr. Steenbusch, communicated by the author.

### Peroxide of Hydrogen as a Medicinal Agent.

Dr. J. Mount Bleyer draws attention to the efficacy of peroxide of hydrogen in a variety of diseases or conditions, where a powerful oxidizing action is indicated. Thus, it is in many instances a most prompt antifermentative and antiseptic, exceeding in power even corrosive sublimate by many degrees. As a disinfectant it is superior to chlorine or sulphur. As an application in form of spray, to diphtheritic membranes, and other morbid conditions of the throat, it is of the highest benefit.

It may be either used in its undiluted, commercial condition, or in dilution.

Pure peroxide of hydrogen has the composition $H_2O_2$ and yields 475 times its own volume of oxygen. 100 parts by weight of $H_2O_2$ yield 5.88 parts by weight of hydrogen, and 94.12 parts by weight of oxygen.

In commerce it is not sold in its pure condition, but in a dilute form. It is customary to designate the various grades of strengths by the volumes of gas which the particular solution is capable of yielding. Usually the commercial article is between "10" and "20" volumes. For instance, a 10-volume solution is one which can evolve 100 volumes of oxygen gas. That is, it contains 2.1 by weight of the $H_2O_2$, and evolves 1.45 per cent of oxygen. It is very customary for physicians to mention a special brand of the peroxide, namely, that made by Chas. Marchand, as the best. But we are in possession of several excellent samples of the substance, made by other parties in this country.

Peroxide of Hydrogen, when used *externally*, is usually diluted as follows:

*Spray of Peroxide of Hydrogen.*

| | |
|---|---|
| Hydrogen Peroxide, 15-vol | 2 fl. oz. |
| Water | 14 fl. oz. |

*Gargle of Peroxide of Hydrogen.*

| | |
|---|---|
| Hydrogen Peroxide, 15-vol | 2 fl oz. |
| Water | 14 fl. oz. |

*Irrigation of Peroxide of Hydrogen.*

| | |
|---|---|
| Hydrogen Peroxide, 15-vol | 3, 4, or 5 fl. oz. |
| Water | 13, 12, or 11 fl. oz. |

*For Local Application.*

| | |
|---|---|
| Hydrogen Peroxide, 15-vol | 3 to 10 fl. oz. |
| Water | 13 to 6 fl. oz. |

*For Inhalation.*

Use the full-strength 15-vol. solution. Do *not* use any metallic inhalers.

*Ozonized Vapor.*

| | |
|---|---|
| Hydrogen Peroxide, 15-vol | 2 fl. oz. |
| Glycerin, pure | 1 fl. oz. |

To be put into a glass apparatus (of special make), where a current of air forces it in form of a spray against the inside of the glass bottle, which causes the splitting up of the compound into nascent oxygen and water.

*Internal Use of Peroxide of Hydrogen.*

1 to 3 teaspoonfuls of the 15-vol. solution in half a glass of water, three times daily, after meals.

In diphtheria in children, irrespective of age, prepared mixture of

| | |
|---|---|
| Hydrogen Peroxide, 10-vol | 200 parts. |
| Glycerin | 8 " |

Of this mixture, a teaspoonful may be given every two hours, and in severe cases, every hour.—After *Med. Record*, August 13th.

### Estimation of Peroxide of Hydrogen.

Dr. H. Thoms has experimented with the four principal methods for estimating commercial solution of peroxide of hydrogen, and communicates his results to *The Archiv der Pharmacie* (April, page 335). The methods are (1) heating a measured volume of the solution of the peroxide with manganese peroxide or lead peroxide. The reaction which occurs may be expressed thus:

$$MnO_2 + H_2O_2 = MnO + H_2O + O_2.$$

The liberated oxygen is passed through strong sulphuric acid, and may be collected and measured, or the loss of weight which the apparatus and its contents suffer after the reaction is complete may be ascertained. In each case the percentage of $H_2O_2$ is calculated from the factor obtained. Squibb's urinometer is a suitable apparatus for this test. (2) 5 C.c. of the peroxide is mixed with three times its volume of dilute sulphuric acid (1 in 4), excess of decinormal permanganate of potash added, and after reaction is complete, excess of this reagent is estimated with decinormal oxalic acid. Two molecules of permanganate decompose five of hydrogen peroxide, and from the amount of the permanganate used the percentage of the peroxide is calculated. A third method consists of adding a measured volume of peroxide solution to sulphurous acid, which is oxidized into sulphuric acid. This is precipitated as barium sulphate, dried, incinerated, and weighed, and the calculation made from the weight found. The fourth method tried was as follows: 50 centigrammes of potassium iodide were dissolved in a mixture of 50 grammes of water and 1 gramme of sulphuric acid (1 in 4); this was heated to 40° Cent., and 5 C.c. of a peroxide solution diluted with 9 volumes of water were added to it, and in five minutes the amount of iodine liberated was estimated with decinormal sodium hyposulphite (of which 1 C.c. = 0.0017 $H_2O_2$), by multiplying the number of cubic centimetres of hyposulphite solution used by 0.34, the percentage of $H_2O_2$ in the peroxide solution is obtained.

Peroxide of hydrogen (10 volumes) should contain 3.0382 per cent of $H_2O_2$, and Dr. Thoms, working by the methods described, obtained the following results: (1) 3.2 per cent, (2) 3.224 per cent, (3) 3.23 per cent, and (4) 3.213 per cent. He considers that all four are useful methods, but gives preference to the first and fourth, which are easier and quicker than the others.—After *Chem. and Drugg.*

### Detection of Fuchsin or Gentian-Violet in Wine.

J. Bernède recommends the following method as very reliable and sharp:

Dissolve 12 Gm. of liquefied carbolic acid (10 parts of phenol and 1 part of alcohol) in 60 parts of ether. Shake 10 C.c. of the suspected wine with 5 C.c. of the mixture, then set it aside for a minute. If the wine was free from foreign coloring matters, the supernatant ethereal layer will be colorless; but if gentian-violet or fuchsin were present, it will have a reddish-violet or deep-red color.—*Journ. Pharm. et Chim.*

### Injury of Salicylic Acid and of Alum to the Teeth.

A Swiss sanitary journal (*Schweizerische Blätter für Gesundheitspflege*) warns against the use of salicylic acid as a constituent of mouth-washes, which has been repeatedly recommended.

According to Mr. Schlenker, a dentist of St. Gallen, a sound tooth loses its gloss completely when placed for a quarter of an hour into a solution of salicylic acid of the strength of 1 in 1,000. Parreidt has shown that salicylic acid dissolves phosphate of calcium which is the most important constituent of the teeth.

Alum is likewise injurious to the teeth, though not to the same degree as salicylic acid. If alum is used for a mouth-wash, the mouth should be well rinsed with water immediately afterwards.

### Lactic Acid in Green Diarrhœa.

In the treatment of this contagious disease of infants, Dr. Hayem has found that the best way of preventing its spreading is to disinfect all the clothes soiled by the dejections. Also instead of alkalies heretofore recommended, he uses acids. It has been observed that both muriatic and lactic acids are deadly to the microbe causing this peculiar diarrhœa in hospitals; but of the two, for obvious reasons, lactic acid is preferable. M. Pierre Vigier has proposed the following formula:

| | |
|---|---|
| Lactic Acid | 2 grammes |
| Simple Syrup | 98 " |
| Oil of Lemon | 1 drop |

Dose: Two or three tablespoonfuls a day.

The preparation tastes like syrup of lemon, and is taken readily by children. For nurslings, the syrup may be diluted with an equal proportion of water.—*Chem. and Drugg.*

### Purification of Honey.

According to O. Kaspar, the following process of clarifying or purifying honey is preferable to all others:

Heat 1 part of the honey with 4 parts of water during half an hour in a vessel immersed in a boiling water-bath, then mix it with shreds of filtering paper (10 Gm. for each kilogram of honey), and a sufficient quantity of recently ignited wood charcoal in powder, and heat another half hour. Then set it aside for twenty-four hours, to allow the suspended matters to subside, filter, and evaporate the clear liquid on the water-bath to 1 part (the original weight of the honey). Then set it aside to cool. When it is cold, determine its specific gravity and adjust this, if necessary, by the addition of water to 1.320. This density is recommended for the reason that honey of specific gravity 1.300 does not keep, while at 1.330 it has a tendency to crystallize.

Honey thus clarified has a golden-yellow color, is clear, of a fine aroma, and does not contain substances foreign to honey.—*Schweiz. Wochenschr. f. Pharm.* and *Neu. Erfind. und Erfahr.*

### Detection of Mineral in Vegetable or Animal Oils.

THE detection of mineral in animal or vegetable oils is usually directed to be accomplished by saponifying the suspected oil by heating with an aqueous or alcoholic solution of potassa, and then treating the resulting soap with petroleum ether, which would dissolve out any unsaponified fat, the latter being, of course, the mineral oil.

In order to separate the produced soap, some analysts are in the habit of adding chloride of sodium to the mixture, others use chloride of calcium or magnesium, or sulphate of magnesium, in order to convert the alkali soap into one of the alkali earths. Benedikt, however, has pointed out that when such strongly alkaline soaps are treated with petroleum ether, a small fraction of the soap is dissolved by this menstruum.

A. Gawalovski has had ample opportunity to confirm this statement of Benedikt. He adds, that the quantity of soap dissolved by the petroleum ether is, indeed, very small, and would not vitiate any but very exact determinations.

To avoid the error, he advises to proceed as follows:

Heat the oil with alcoholic solution of potassa (about 2 parts of hydrate of potassium to 10 parts of fatty matter) until saponified, drive off the larger proportion of alcohol by heat, then add a solution of chloride of calcium, or of sodium, or of magnesium, or of strontium, and finally bicarbonate of sodium, until the alkaline reaction has nearly disappeared. [The alkaline reaction, of course, would appear again after the mixture is raised to boiling; yet the monocarbonates then formed are neither themselves soluble in petroleum ether, nor do they promote the solubility of the soaps in this solvent.] Instead of bicarbonate of sodium, the bisulphate may be used. Alum solution might also be used to remove the excess of alkali, but in this case great care must be taken to avoid adding an excess.

A soap which has been rendered free from uncombined alkali by this method is absolutely insoluble in petroleum ether. Hence, if the soap is treated with this solvent, the latter may dissolve any mineral oil present, but none of the soap.—After *Zeitsch. f. Anal. Chem.*, 1887, 330.

### Assay of Coca Leaves.

J. PFEIFFER recommends the following as the best method of assaying coca leaves:

Reduce 100 Gm. of the leaves to pieces not larger than 25 millimeters square [why not to powder?] and shake them in a long-necked flask with 400 C.c. of water and 500 C.c. of one-tenth normal solution of soda (containing 4 Gm. of caustic soda in the liter). Next add 250 C.c. of petroleum (boiling at 200–250° C.) and digest the whole for 2 hours on the water-bath at 70° C., the flask being only loosely stopped. Allow to cool, strain through a coarse strainer and strongly express the residue. On standing, the liquid separates into 2 distinct layers, a light-yellow oily layer on top, and a dark greenish-brown aqueous layer below, which are separated by a separating funnel. The clear filtered petroleum layer is then transferred to a glass-stoppered bottle, and titrated under continued agitation with $\frac{1}{100}$ normal hydrochloric acid (containing 1 Gm. of HCl in 100 C.c.), until neither blue nor red litmus paper is affected by a drop of the agitated mixture. The number of cubic centimeters of the hydrochloric acid thus consumed, when multiplied by 0.042, indicates the percentage of alkaloid in the coca, with sufficient accuracy for practical use, and, according to the author, more exactly than any other heretofore published method.—*Pharm. Zeit.*

### Salol.

THE following process for preparing salol, the phenyl ether of salicylic acid, has been patented by Hofmann & Schoetensack, of Ludwigshafen, on the Rhine.

58 kilos of phenol-sodium, and 80 kilos of salicylate of sodium are intimately mixed in an iron boiler provided with mechanical stirring arrangement and reflux condenser, and the mixture then exposed to the action of phosgene gas. [This is an oxychloride of carbon, $COCl_2$, which may be prepared in various ways, best by passing carbonic oxide gas through pentachloride of antimony.—ED. AM. DR.] There results a strong reaction, accompanied by heat. When the mixture cools, a moderate artificial heat is applied to complete the process. The salol may be readily separated from the mixture by a current of steam. It collects in form of drops under the surface of the water, may be readily brought to crystallization by dropping into it a crystal of the substance, and is finally recrystallized from dilute alcohol.—*Deutsch. Patentblatt.*

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**Boracin** is said to consist of boric acid, glycerin, methyl salicylate, menthol, thymol, and eucalyptol. It is used in solution as a wound dressing; as a thick paste, it is applicable to ulcers; as suppositories made with 45% of glycerin, it may be used in treating chronic leucorrhœa, or to exterminate rectal parasites; and as an ointment it is a remedy for eczema.

### Note on the Active Principles of Croton Oil.

ACCORDING to Senier (See NEW REM., 1878, 118), croton oil contains two active principles, one of which is only purgative, while the other is only vesicant. This statement is not borne out by the investigations of Ernest von Hirschheydt, made under the direction of Prof. Kobert, of Dorpat. On the contrary, both of the above effects are united in the crotonoleic acid discovered by Buchheim (1873). The glyceride of this acid is inert, but the free acid possesses both the vesicating and the drastic purgative properties of the oil. The acid is best prepared by saponifying that portion of croton oil which is soluble in alcohol by means of hot saturated solution of baryta, washing the resulting stiff magma completely with water and treating it repeatedly with ether, which leaves the barium salts of stearic, palmitic, and lauric acids undissolved, but dissolves oleate and crotonoleate of barium. After the evaporation of the ether, the residue is taken up by alcohol, which dissolves only the crotonoleate of barium. This salt is finally decomposed wich sulphuric acid. From the filtrate the free acid may be prepared.

[Senier's experiments appeared to show conclusively that the portion of croton oil which was the most soluble in alcohol was the most active. At the same time he found that the solubility in alcohol and the activity of the oil increased with age. This fact has been confirmed by therapeutic observations made at Bellevue and other New York hospitals, but the reason for it—if it is one residing in the oil at all—has not yet been ascertained. Ageing can have hardly more than an oxidizing effect upon the oil. To test the influence of oxidation, one of us has acted upon croton oil with permanganate of potassium in aqueous neutral as well as alkaline solution, and has thereby obtained a considerable quantity of resin which was found to be nearly inert. But the residuary oil, after purification, turned out to be rather more active than the original oil.—ED. AM. DR.]

### Preparation of Pure Hydrogen and Carbonic Oxide Gas.

SCHWARZ recommends the following simple method for preparing hydrogen gas.

Convert a sufficient quantity of quicklime, by means of a little water, into hydrate, pass it through a sieve and dry it at 100° C. Mix 22.8 Gm. of this with 20 Gm. of zinc dust, introduce the mixture into a combustion tube, and heat the latter in the combination furnace, beginning at the rear end. There will be given off a steady current of very pure hydrogen, the reaction being:

$$\underset{\text{zinc}}{Zn} + \underset{\substack{\text{calcium}\\ \text{hydrate}}}{Ca(OH)_2} = \underset{\substack{\text{zinc}\\ \text{oxide}}}{ZnO} + \underset{\substack{\text{caustic}\\ \text{lime}}}{CaO} + \underset{\text{hydrogen}}{H_2}$$

The yield from the quantities above given is about 5,200 cubic centimeters.

In the same manner, carbonic oxide gas may be prepared by mixing 20 Gm. of zinc-dust with 20 Gm. of calcium carbonate, and proceeding in the same manner. The reaction is:

$$\underset{\text{zinc}}{Zn} + \underset{\substack{\text{calcium}\\ \text{carbonate}}}{CaCO_3} = \underset{\substack{\text{zinc}\\ \text{oxide}}}{ZnO} + \underset{\substack{\text{caustic}\\ \text{lime}}}{CaO} + \underset{\substack{\text{carbonic}\\ \text{oxide}}}{CO}$$

The yield of carbonic oxide is 6,820 cubic centimeters.—*Ber. d. Deutsch. Chem. Ges.*

### Testing for Salicylic Acid.

TAFFE recommends, in the *Journ. de Chim. et Pharm.*, to extract salicylic acid from mixtures containing it [after acidulating the liquid if necessary], by means of petroleum ether of spec. grav. 0.650, in conjunction with ordinary ether. The advantage of this method is stated to be this, that petroleum ether rejects or separates the water which the latter always contains, and that the mixture does not again become aqueous on shaking, as is the case when only the common ether is employed.—*Rundschau* (Prag).

### Photoxylin.

PHOTOXYLIN, a substance used in Russia by photographers, has been recommended by Prof. Wahl, of St. Petersburg, as a substitute for collodion in surgical practice. He states that a five-per-cent solution of photoxylin in equal parts of alcohol and ether, when applied to the skin, forms an impervious dressing that adheres firmly and is not easily rubbed off in washing. In small operations, he has found that the application of this solution makes it possible to dispense entirely with more bulky antiseptic dressings.—*Lancet* and *Pharm. Journ.*

### Borax, Honey, and Bicarbonate of Sodium.

IT is known that the addition of *glycerin* to a solution of borax renders the latter acid; so that, if a bicarbonate is present at the same time, the second molecule of carbonic acid gas will be expelled under effervescence. The same effect is produced by *honey*, but what constituent of the honey it is which causes this reaction has not yet been determined.

### Cleaning Chemical Glassware.

One of the most annoying occurrences during the use of chemical glassware, such as test-tubes, measuring vessels, burettes, pipettes, etc., is the persistence with which traces of fatty matter adhere to the interior, preventing thereby the uniform wetting of the surface by the contained liquid. In the case of volumetric work, this often seriously interferes with measuring, as it is impossible to read off any volume correctly, unless the residuary liquid has uniformly drained down to a steady level, without leaving drops adhering to the side.

It is sometimes apparently impossible to remove the last traces of this fatty coating even with the aid of a caustic alkali or with benzin. The most efficient method for accomplishing the purpose, according to C. Mohr, is to fill the burette or other glass vessel with a rather concentrated solution of permanganate of potassium which is allowed to remain in it for several days. The vessel is then rinsed with diluted hydrochloric acid and water.

*Note by Ed. Am. Drugg.*—In some cases, it will be found best to use a strongly alkaline solution of permanganate of potassium. This is particularly the case, when a glass vessel has contained solutions of vegetable constituents, containing oily or waxy matters, extracted by volatile solvents.

### Assay of Essential Oil of Mustard in Mustard Plaster, Etc.

Eugen Dieterich recommends to use the following process for estimating the quantity of essential oil of mustard in mustard plaster or other preparations of mustard.

A definite quantity or a measured surface of the plaster is cut into a number of very small pieces or strips, placed in a flask and covered with 50 C.c. of water at a temperature of about 25° C. (77° F.). The mixture is agitated for about 10 minutes, and 5 C.c. of alcohol added to interrupt the reaction. Next 2 Gm. of olive oil are added, for the purpose of preventing excessive foaming. During the subsequent distillation, a Liebig's condenser connected with the flask, and a receiver attached having the capacity of 100 cubic centimeters, and containing 10 Gm. of water of ammonia. About 25 or 30 C.c. are now distilled over from the flask, the distillate diluted with water to 100 C.c., and solution of nitrate of silver added to the latter in slight excess. After 12 or 24 hours, the precipitate is collected upon a weighed filter, washed with water and dried at 100° C. The weight of sulphide of silver found multiplied with 0.4301, represents the quantity of essential oil of mustard present in the article examined. —*Pharm. Post.*

### Oil of Turpentine a Deodorant of Iodoform.

Oil of turpentine is recommended as a very efficient deodorant for the hands or for utensils, after they have come in contact with iodoform. They are first thoroughly rubbed with oil of turpentine, and after about half a minute washed with soap or soap spirit.—*Zeitsch. d. Oesterr. Apoth. Ver.*

[*Note of Ed. Amer. Drugg.*—We prefer a watery solution of tannic acid, which leaves no odor of its own, destroys that of iodoform immediately, and can be washed off at once.]

### The Identity of Cadaverine.

Prof. Ladenburg has definitely shown that the ptomaine or cadaver alkaloids discovered by him some time ago, and then suspected to be identical with pentamethylendiamine, a base which can be produced synthetically—is really the same body as the latter.—*Ber. d. Deutsch. Chem. Ges.*, 1887, 2,216.

[The tyrotoxicon, or milk ptomaine discovered by Prof. Vaughn of the University of Michigan, appears to belong to the same class of bodies, as may be judged from a recent statement of the discoverer.]

### Cannabis Indica in Diarrhœa.

Tincture of cannabis indica is recommended in the *Practitioner* (July, p. 9), by Drs. F. F. Bond and B. E. Edwards in the treatment of summer diarrhœa. It is stated to possess the advantage of not interfering with the digestive functions, but on the contrary to accelerate their return. The dose given is ♏x. in conjunction with other remedies.—*Pharm. Journ.*

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**Strophanthin.**—E. Merck, of Darmstadt, announces that he now manufactures the active principle of strophanthus, namely, *strophanthin.* This is in form of a white, crystalline powder, melting at 185° C. (365 °F.), and leaving no residue when heated. The dose has been stated by British practitioners to be 0.0003 Gm. (about $\frac{1}{200}$ grain), but in the Imperial Public Hospital of Vienna it is given to the extent of 1 or 2 milligrammes ($\frac{1}{64}$ to $\frac{1}{32}$ grain) per day, usually dissolved in Aqua Laurocerasi, it being administered in divided drop doses.

**Solutions of Corrosive Sublimate,** according to Dr. Stütz, of Jena, may be prevented from decomposition by adding 7½ grains of citric acid to each quart of water employed. When this plan is followed, there is no precipitate formed with albuminoids, alcohol, or glycerin.

**Phytolacca decandra,** or poke-root, is recommended by Dr. J. V. Stevens, of Prairie du Lac, Wis., as a serviceable remedy in glandular enlargements (without cystic degeneration) and especially in goitre, and reports eight cases of the latter with seven recoveries. He not only applies the fluid extract externally, but also gives it in doses of one to five drops thrice daily. In three cases, it was sufficient to employ the remedy externally only.—*Med. Age*

The *Sanitary Engineer* says that the ivory finish used so much for producing the colonial wood-work effect is made by using five to more coats of oil paint. With the last two, Japan varnish and ivory white are mixed, so as to give the polish. Each coat of paint is rubbed down before the next coat is applied. With the last two coats pumice stone is used for rubbing down. With cherry wood five coats will do; with pine, seven are needed to give the same finish.

**A New Asparagus.**—Some little interest has been excited by the announcement of the discovery of a new and remarkable variety of asparagus on the steppes of Akhal-Tekiz. It has not been botanically identified, but it is represented as growing perfectly wild, the stalks being nearly as thick as a man's arm, and attaining a height of five or six feet; so that one of them is said to suffice ten Russian soldiers for a meal. If the preference of experts for wild asparagus finds justification in this variety (and its flavor is described as equal to the best European kinds), asparagus-lovers may have a good time before them.—*Pharm. Journ.*

**Sulphurous Acid,** inhaled in very small quantity, is said by Dr. Mohn, of Christiania, to be a specific cure for most cases of whooping cough. His plan consists simply in the thorough disinfection, by means of burning sulphur, of the rooms, clothing, etc., used by the affected children. The children are taken out of the room, the bedding, furniture, and playthings are exposed, and two ounces of sulphur are burned for every one hundred cubic feet of space in the room. After the room has been thus exposed to the sulphurous acid fumes the affected children are allowed to return and occupy it. As a result of this treatment it is claimed that attacks of coughing are immediately alleviated, and often entirely disappear in a single night.

**Artificial Production of Pilocarpine.**—Messrs. E. Hardy and G. Calmels have succeeded in effecting the synthesis of pilocarpine. In a paper read before the Academy of Sciences, they gave a full description of their process, which consists of two steps, first the transformation of pyridine-lactic acid into pilocarpidine, and secondly, the transformation of pilocarpidine into pilocarpine. As the method is complicated and must be expensive, since gold chloride is one of the chemicals employed, the new synthesis is no doubt important scientifically, but cannot be said to be a practical process.—*Chem. and Druggist.*

**Mexican Custom Duties on Drugs.**—On July 1st, a new customs tariff came into force in Mexico, based upon somewhat less reactionary principles than the previous one, under which import duties equal to 200 per cent *ad valorem* were imposed on several articles, but still highly protective. In the new tariff, a large reduction has been made in the duties on drugs and medicines, but in many cases they still remain extravagantly high; for instance, on alkaloids and their salts not specified (431), $15 per kilo. The effect of these high duties on medicines, says the British consul at Vera Cruz, is that the poor are often unable to obtain proper medicines, and have to content themselves with cheaper substitutes; and that drugs and medicines are extensively smuggled, especially those that are taxed most heavily, the exchequer thus actually obtaining less revenue from the high duties than it would from a moderate impost.—*Chem. and Drugg.*

**Antifebrin.**—The experiments by Cahn and Hepp (who introduced the therapeutic use of this drug), as shown in the wards of the Strassburg hospital with 60 cases, prove that it may be used in doses of 5 to 15 grains, 8 grains being an usual dose. It may be given in warm water, alcohol and water, or in a capsule. Doses as large as 60 to 90 grains have caused no toxic symptoms. Most patients rarely require more than 30 grains per diem, and it is usually sufficient to give 8 grains followed by smaller doses to maintain a lowered temperature. The effects are manifested in about an hour, and a reduction of from 3 to 5 degrees is attained in as many hours, although the fall is sometimes more rapid and may reach 5 or 6 degrees in two hours. Profuse sweating, without chills, almost invariably occurs, and nausea or disturbance of the stomach was not observed. After a period of 4 to 5 hours the temperature has a tendency to rise again unless small doses are used to prevent it.—*Med. News.*

## QUERIES & ANSWERS.

*Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer, for the information of the editor, but not for publication.*

No. 1,994.—**Wither's Disinfectant** (M. D.).

We have had no personal experience, as yet, with this article, but have seen various printed circulars regarding it. According to Otto Bierbach, who analyzed it in the laboratory of the School of Pharmacy of the University of Wisconsin (*Pharm. Rundschau*, N. Y., July), it contains:

| | |
|---|---|
| Mercuric Chloride | 0.207 |
| Aluminium Chloride | 0.084 |
| Zinc Chloride | 0.048 |
| Potassium Chloride | 0.087 |
| Sodium Chloride | 0.788 |
| Free Hydrochloric Acid | 0.060 |
| Water | 98.726 |

No. 1,995.—**Cement for Leather** (Canada).

The following is recommended as a very strong cement for joining leather (belting, etc.).

Soak 2 lbs. of best carpenter's glue in three lbs. of water, then dissolve by the aid of heat and keep on heating until the solution has acquired the consistence of syrup. Then add 3¼ oz. of Venice turpentine and about 80 minims of liquefied carbolic acid. On cooling, this cement congeals to a gelatinous mass, which is to be cut into thin slices and spread upon tin plates to dry, which requires about 2 days. When used, the cement is melted with the addition of a little vinegar, then applied with a brush to the freshly cut and tapered end of the leather, and the joint pressed between warm iron plates for a quarter of an hour.

No. 1,996.—**Decoloring darkened Vinegars** (M. E.).

Animal charcoal will accomplish this as far as it is at all possible. Gawalovski recommends for this purpose to treat crude animal charcoal, in powder, with about three times its weight of concentrated sulphuric (not hydrochloric) acid, to dilute, after twenty-four hours, with water, then to strain and to wash the charcoal on the strainer with hot water until the latter runs off colorless and tasteless. It may then be used at once without being dried.

The vinegar is mixed with about 5 per cent of its weight of the charcoal, and the mixture stirred repeatedly during twenty-four hours. It is then filtered through flannel, and the filtrate allowed to clarify completely by settling, during about eight days, before being used.

The charcoal may be used over again, but must previously be treated with water containing soda in solution (1 part of soda for 200 of charcoal), then washed, first with water, then with very dilute acid, and again washed.

No. 1,997.—**Drumine and its Salts** ("Query").

Some time ago, Dr. John Reid announced the discovery of a proximate principle (supposed alkaloid) in an Australian species of Euphorbia, viz., *Euphorbia Drummondii* Boiss. He also described a method by which he had extracted the alkaloid. The latter was reported to have effects resembling those of cocaine, and therefore promised to be of considerable value and importance.

His description of the mode of preparation and properties, however, was affected with certain evident errors, so much so that in our first notice (February number, p. 29) we drew attention to the ambiguity. Since then we have been repeatedly asked whether any of the substance could be had in this country, but up to the present time we have been unable to refer our correspondents to a reliable source.

It is now reported that a series of experiments made in England with a sample of the principle obtained from Dr. Reid have failed to show that it produces any anæsthetic effects whatever.

No. 1,998.—**Preservation of Milk, Urine, and similar Liquids** (Laboratory).

When it becomes necessary to preserve samples of milk, urine, etc., from decomposition, at least so far that their future analysis is not interfered with, various agents may be used to accomplish this. We generally prefer chloroform or disulphide of carbon, if possible the former, directing a sufficient quantity to be shaken with the liquid to saturate it and to leave a small undissolved excess. The liquid thus treated is to be put into a bottle and tightly sealed. Of course, this does not prevent the milk from curdling; but this makes no difference, as the properties and proportions of the constituents are not altered thereby.

Allen recommends, for preserving milk, a quantity of methylic alcohol equal to twice its weight.

The necessity of using preservative agents arises often, either through samples which are to be sent by mail or express to a distant place for analysis, or when it is deemed advisable to set aside a sample of such a liquid for future reference, should any doubt arise regarding the correctness of the first analysis.

No. 1,999.—**Naphthalol** (Subscriber).

This is the name given to a compound which may be termed the salicylic ether of beta-naphthol. For some time past, a similar compound, *salol*, has been used. This is the salicylic ether of phenol, containing 38 per cent of the latter, and has been reported to be rather energetic or even poisonous in its action. It was supposed that by replacing phenol with a less irritant, but allied body, such as beta-naphthol, a safer compound could be produced. E. Merck, of Darmstadt, accordingly prepared this body, and it has been experimented with by Prof. R. Kobert, of Dorpat. It has been named both *naphthalol* and *naphthol-salol;* its composition is $C_6H_4OH.COOC_{10}H_7$.

Naphthalol is insoluble in water, odorless and tasteless, and not dissolved or affected by acids, the gastric juice, or pepsin. In doses of 5 to 8 grains daily, it does not produce noises in the ear, fulness of the head, and other disagreeable symptoms such as are sometimes produced by phenol-salol. The drug was found very useful, and at least as valuable as others, in various forms of catarrh of the bladder, especially in gonorrhœal cystitis, with alkaline decomposition of the urine.

For urethral injection, however, in gonorrhœa, there is no advantage in the use of the naphthalol over that of the ordinary salol (phenol-salol).

No. 2,000.—**Aniline Colors for Petroleum, Benzin, etc.** (Oil City).

The usual aniline colors are not soluble in petroleum or liquids allied to or distilled from it. It is, however, reported that metallic lakes or soaps may be prepared from many of these colors, which will dissolve in the liquids above-mentioned. Dr. A. Mueller-Jacobs, of New York, the originator and patentee of "polysolve," has obtained a patent on a process of which the following is an outline:

A resin soap is prepared in the usual manner by saponifying rosin with soda and carbonate of sodium. To the solution of the soap is added an aqueous or alcoholic solution of a basic aniline color, such as fuchsin, safranin, chrysoidin, aniline-violet, malachite-green, etc., and afterwards a solution of an aluminium or zinc salt, very gradually and in small portions. This will produce a colored precipitate (the tint varying, of course, according to the nature of the coloring matter), which is thoroughly washed with lukewarm water. These lakes may be either used directly for printing cotton fabrics, wall-paper, or tapestry, or they may be dried at a temperature not exceeding 50° C. (122° F.). The powder thus obtained is soluble in benzol and similar solvents, and is said to be specially useful for coloring varnishes.

No. 2,001.—**Hair Restorative** ("Richelieu").

This correspondent asks for a receipt of a "hair restorative of the sulphur and lead kind." He says he has several, but they are not satisfactory.

We would refer our reader in the first place to the last number of this journal, page 154, where he will find a number of practical formulas, none of which, however, contains any lead. To judge from the date of his letter, he had not received his copy of this number when he wrote it.

*Lead hair dyes*—we judge that our correspondent did not actually mean restoratives of hair, but restoratives of the *color* of the hair—*should be warned against* whenever possible. However, if one *must* be supplied for some special reason, a good combination is said to be the following:

| | |
|---|---|
| Dry White Lead | 2 parts |
| Litharge | 1 part |
| Slaked Lime | 3 parts |

Mix the solid ingredients, which should be in fine powder, and keep the mixture in glass bottles.

When it is to be used, take out a sufficient quantity, make a thick paste by using a mixture of equal volumes of water and glycerin, and apply the paste to the hair by means of a small brush, so that the hair is completely covered. Absorption of lead will take place through the surface of the hair, and at the same time there will take place a formation of sulphide of lead, the quantity depending upon the time. Four hours are usually required to produce light brown hair, about eight hours for dark brown, and twelve hours for black. When the proper tint has been reached, the hair must be well washed with water, and when dry, anointed with some oil or fat. The powder applied to the hair will not be absorbed if it becomes dry; hence a little glycerin is mixed with it. Should it dry up nevertheless, a new layer must be applied and some impervious material wrapped around the head.

A preparation of this kind should never be furnished by an intelligent and conscientious pharmacist, without warning the purchaser against the possible consequences.

No. 2,002.—**Pills of Warburg's Tincture** (Baltimore).

Some manufacturers put on the market "Pills of *Extract* of Warburg's Tincture." Now Warburg's tincture contains camphor and several other ingredients, which will be injured by being subject to evaporation. To prepare an extract from the tincture, therefore, is likely to dissipate some valuable constituents, and at the same time it is an expensive process, as the tincture is quite dilute, and but a small amount of actual extract will be obtained from a large volume of tincture. There is no special necessity, in our judgment, of first preparing an *extract*. The drugs themselves may be employed in the same quantities as they are directed for the tincture.

The relation between the tincture and the pills of the tincture is usually given so that 1 fluidrachm of the former is said to be equivalent to a 5 grain pill, or to "5 grains of the Extract of Warburg's Tincture."

We shall first quote the formula for Warburg's Tincture as given in the Draft of the National Formulary :

| | | |
|---|---|---|
| Rhubarb | 448 | grains. |
| Angelica Seed | 448 | " |
| [Opium | 16 | " ] |
| Elecampane | 224 | " |
| Saffron | 224 | " |
| Fennel | 224 | " |
| Gentian | 112 | " |
| Zedoary | 112 | " |
| Cubeb | 112 | " |
| Myrrh | 112 | " |
| White Agaric | 112 | " |
| Camphor | 112 | " |
| [Chalk | 224 | " ] |
| Sulphate of Quinine | 1,280 | " |
| Diluted Alcohol | to make 1 gallon. | |

The opium may be omitted; it is only put in the formula for the purpose of giving an equivalent for the Confectio Damocratis which contains about the above quantity of opium in the amount directed to be taken by Warburg for 1 gallon of the tincture. The chalk does not enter into solution, and may therefore be omitted. Now 1 gallon of tincture represents 1,040 fluidrachms. If a pill mass is to be prepared from the constituents above named, so that each fluidrachm of the tincture will be represented by 5 grains, the total weight of the pill mass will have to be 5,120 grains. If we add together the whole of the constituents above given for 1 gallon of the tincture, omitting the chalk only, we obtain only 3,536 grains, leaving a balance of 1,584 grains to be made up by excipient and some indifferent powder. In practice, extract of gentian will probably be found most suitable. Whether the pills are exactly 5 grains or a little less in weight will make no difference. Our advice, therefore, is to prepare the pills simply by taking the drugs in fine powder, omitting the chalk, and to make them into a pill mass with extract of gentian, the quantity of drugs above given, and thus made into a mass to make 1,040 pills.

No. 2,003.—**Fulminating Mercury** (U. S. A.)

There are several methods for preparing this very dangerous explosive, all of which are perfectly safe for those who have the requisite experience and use the necessary caution in the preparation. It is, however, a risky matter for those who have not acquired the experience to undertake the operation on any but a small experimental scale, until every phase of the operation is thoroughly studied, and every condition of temperature, dilution, etc., is known, insuring safety to the operator. Cautioning you, therefore, against a reckless experiment on a large scale, and advising you to proceed at every step in such a manner that no injury can accrue either to yourself or to others, we append a process which is now regarded as one of the least dangerous ones. At least, no accident has been reported to have happened in factories where this has been employed.

55 parts (by weight) of nearly absolute alcohol (98.5 per cent by weight; spec. grav. 0.798) are poured into a large flask, with wide neck, the alcohol is warmed to and kept at a temperature between 25° and 30° C. (77°–86° F.); and to this are added, very gradually, 5 parts of pure metallic mercury previously dissolved in 60 parts of nitric acid of specific gravity 1.400. The flask should have a capacity of at least three times that of the volume of alcohol introduced. The mercurial solution may be added warm (up to a temperature of about 60° C. or 140° F.) if its quantity is small. With larger quantities a lower temperature will suffice, but if the reaction does not readily begin, *gentle* heat must be applied to the flask until gas bubbles are evolved, when the heat should at once be withdrawn. The neck of the flask should be provided with a well-fitting wide glass-tube leading into the open air, care being taken that the escaping vapor shall not come in contact with a flame, as this would result in a violent explosion. The fulminating mercury is gradually deposited during the operation. When it is apparently completed, or in case reddish, transparent vapors should make their appearance during the reaction (which would indicate an extension of the latter beyond the desired limit), a quantity of water equal to the volume of alcohol used is poured into the flask. The grayish-white fulminate is then transferred to a number of filters and washed in such a manner that none of them can run dry. When the washing has been continued long enough, the contents of each filter are spread out separately, in suitable distances from each other, to dry.

Fulminating mercury has been known to explode from very trivial concussions, though it is not nearly as dangerous in this respect as chloride or iodide of nitrogen. If several samples of any of the latter are placed near each other on a solid support, or on the ground, and one of them is made to explode, the concussion is instantly communicated also to the other, causing this to explode likewise. This may be avoided by laying the samples upon thick wads of loosely picked cotton or tow, which greatly weaken the force of concussion. The same precaution may be used in the case of fulminating mercury.

No. 2,004.—**Gelseminum or Gelsemium?** (L. H. W.)

We are in receipt of a letter from a western correspondent, who questions the correctness of the spelling *Gelsemium*, as against *Gelseminum*, which one of us has had occasion recently to point out as an error (in *Latin Titles of Druggists' Shop Labels*, published by Whitall, Tatum & Co.). He adds that the word is taken from the Italian *gelsemino* [*gelsomino* is the usual term], and that in the derived words, namely: English, *jessamine*, French, *jasmin*, and Spanish, *jazmin*, the letter *n* is retained, while the balance of the word varies.

In reply we would say, that in following the spelling *Gelsemium*, we merely comply with the universal rule, applying both to systematic names in natural history, and to family names of persons, viz: to preserve that spelling which will insure the most certain identification of the individual. There are certain inflexible rules in botanical nomenclature which cannot be infringed upon without running the risk of causing confusion.

The word *gelseminum* or *gelsemium* is of mediæval origin. There is hardly any doubt that it has originated from the Greek *ἰασμη*, or *ἰάσμινον*, which is, however, itself stated (even by ancient writers, see Dioscorides, 1, 76) to be derived from the Persian. This statement is correct, as it is even in modern Persian named *yâsemîn* (also more briefly *yâs*, or *yâsim*), though the original meaning or derivation of the Persian word (from which the Arabs have borrowed it) is unknown. In mediæval times, as long as systematic botany did not exist, the generic name *Jasminum* was applied only to European plants having more or less resemblance to the common jasmine (*Jasminum officinale* L.). With the more critical discrimination of characters, however, it gradually became evident that one or more plants having up to that time been included in the genus *Jasminum* should be separated from it. Accordingly, in 1741, Catesby in his Natural History of North Carolina, etc., established the genus name *Gelseminum* for the American jessamine and this name was subsequently adopted by Pursh (Flora Americæ Septentrionalis, 1814), Elliott (sketch of the Botany of South Carolina, 1821), and even a few more recent authors, such as Bartling ("Ordines Naturales," 1830), Grisébach ("Observationes de Gentiaracearum fam. characteribus," 1836), and Darby ("Flora of the Southern U. S."). Even Aiton, who first characterized the American plant, and whose name is attached to its present title, called it *Gelseminum sempervirens* (in his Hortus Kewensis). Previously to the last-named author, however Jussieu (in Genera Plantarum, 1789), had given a more strict and rigorous characterization of the American plant, involving so much difference, that he considered it necessary, for the sake of avoiding confusion, to choose a new genus name, for which he selected *Gelsemium*, differing from the former term only by the omission of the *n*. The genus *Gelsemium*, as originally defined by Jussieu, has since then been generally recognized *as such* and the spelling retained by most authorities. By common consent, the classification and orthography adopted by Bentham and Hooker in their "Genera Plantarum" is now usually followed by nearly all botanists. They also adopt the spelling *Gelsemium* ("Gen. Plant.," II, 789). So does Gray ("Synoptical Flora of N. A.," II.1, 107). There are only three species of "Gelsemium" known, two of which belong to Eastern Asia, while the third is the American species. After Jussieu, the spelling *Gelsemium* was recognized and adopted by Richard (in Michaux, "Flora Boreali-Americana," 1803), Persoon ("Synopsis Plantarum, seu Enchiridion," 1805), Sprengel (1817), Nuttall (1818), Reichenbach (1828), G. Don (1837), A. Jussieu (1849), Miquel (1856), Chapman, and many others.

Since, therefore, every botanical authority of the present day uses the spelling *Gelsemium*, and since a scientific term, purposely introduced and once adopted, should remain unaltered, irrespective of any etymological considerations, the above is the only way in which the word should be written.

No. 2,005.—**Becchi's Test for Cotton-Seed Oil in Olive Oil** ("Georgia" and S. O. C.).

We have several times already given an account of this test in our journal. In fact, the test was first made known by us, namely in NEW REMEDIES, 1883, page 314, it having been communicated to us by Mr. A. Janssen, of Florence. Since then, this test has been variously criticised, though mostly in a favorable manner. At one time the Italian government, which is vitally interested in the question of the purity of olive oil exported from Italy, had recommended as the best general test of olive oil the well-known elaidin reaction, for which detailed conditions were given. But it was impossible, by means of this, to recognize the most dangerous adulterant of olive oil, viz., cotton-seed oil, unless it was present in considerable quantity or was entirely substituted for olive oil.

A new commission had meanwhile been appointed which made a thorough study of Prof. Becchi's test, examining for this purpose a large number of samples, not alone of olive olive of known purity, but also of mixtures of it with cotton-seed oil. The commission rendered a report in the beginning of this year, and the following is an abstract of it (after *Amer. Journ. Pharm.*).

The method of Professor Becchi, as used by the commission, and with successive modification by the author, consists in the subjection of a sample of the suspected oil to the heat of boiling water, after first having added an alcoholic solution of silver nitrate, and amylic alcohol and oil of rape, in the manner and proportions hereinafter indicated.

Take 1 grain of crystallized silver nitrate and dissolve in the smallest possible quantity of water (about 1 C.c.) and add 200 C.c. of alcohol (96°). The addition also of 20 C.c. of sulphuric ether is a good one, in that it makes the reagent better miscible with the oil to be examined, but it is not necessary. On the other hand, prepare a solution composed of 85 parts of amylic alcohol and 15 parts of oil of rape-seed. These reagents should be made as needed and not kept on hand for any length of time.

Now, to apply the test, Professor Becchi takes 10 C.c. of the oil to be examined, adds 1 C.c. of the alcoholic solution of silver nitrate and then from 8 to 10 C.c. of the mixture of amylic alcohol and oil of rape, agitating strongly and then heating on a water-bath for five or ten minutes.

In the case of pure oils, the color remains the same as it was, after the addition of the reagents. In the event that sophistication has been practised with cotton-seed oil, there will be produced a brownish color, or turbidity, of a varying grade, from a very light-brown to a deep maroon or black, according to the quantity of cotton oil present. With these data furnished by Professor Becchi, and after having assisted at experiments made by him in support of his method, the commission instituted a series of long and diligent experiments, numbering over two hundred, in the chemical, biological, and hygienic laboratory of the Royal Institute, adhering strictly to the rules as laid down, measuring exactly in each instance the quantities of oil and reagents, and using tubes of equal diameters or, in one word, employing the same conditions in all experiments, in order to render the result truly comparative.

The oils used were furnished in part by Professor Becchi, and in part by this commission, looking especially for those olive oils of whose genuine nature there could be no possible doubt, and then, secondly, taking good olive containing cotton oil. Several of the olive oils were from other countries (Spain, France, Tunis, Dalmatia, and Malta, etc.), but the greater number were from various parts of Italy. Some were recent and some old, others pure, of 1 a, 2 a, 3 a, quality, and others were rancid.

In order to ascertain if the reaction outlined by Becchi was peculiar to cotton-seed oil addition alone, the commission found it necessary to extend their experiments upon other oils, vegetable and animal, alone and admixed with pure olive oil.

Regarding other foreign oils it may at once be stated that no change was produced by the reagent in their presence, except to a slight extent in some samples of rape-oil; but the characteristic reaction was easily obtained by mixing each oil previously with 20 per cent of cotton-seed oil.

The commission recommends the test for general adoption as the best that is so far known.

No. 2,006.—**Cold Storage without Ice Machines** (K.).

We have received the following query, which we are at the present unable to answer satisfactorily:

"Can you give us any information regarding a reported discovery of making cold storage without using ice machines?"

We would suggest to our correspondent to furnish details as to the nature of the article to be cooled or to be stored cold; also any reports (even though second-hand) he may have had regarding the process.

If any of our readers can answer the query, we would be very much obliged.

No. 2,007.—**Gymnema Sylvestre** (J. M. C.).

This subscriber asks where he may obtain the plant *Gymnema sylvestre*, regarding which we published a note on page 109 of our current volume. It is reported that when chewed it benumbs the tongue and palate, so as to render them incapable of appreciating any *sweet* substance. This property has been known, however, for a long time.

The plant is a native of India, occurring chiefly in the Ghauts, in Concan, and in the Goa territory. We have no doubt that any desired quantity could be obtained through one of the Bombay drug houses, the best method for our correspondent being probably to give a definite order of importation to one of the large New York houses. To insure a correct execution, it might be advisable to order, for instance, as follows: "......pounds of the root [or leaves] of Gymnema sylvestre; Mahratti "vâkandi" (see Dymock, "Materia Med. of Western India," 2d edition, page 521)."

By the way, some authorities state that the peculiar effect upon the gustatory nerves which the chewing of the plant is said to produce is only inherent in the *fresh* plants.

No. 2,008.—**Corn Salve** ("Richelieu").

We do not know the composition of the proprietary corn-salve mentioned by our correspondent. A good application, of at least equal efficacy, however, is the well-known Indian hemp and salicylic acid collodion, recommended some years ago by Gezow (NEW REMEDIES, 1882, 85). The formula is:

| | |
|---|---|
| Salicylic Acid | 5 grains. |
| Extract of Indian Hemp | 30 " |
| Collodion | 5 fl. dr. |

Dissolve by agitation.

Another compound which has acquired some reputation is that known as Baudot's Corn Plaster:

| | |
|---|---|
| Resin Cerate | 40 parts. |
| Galbanum Plaster | 40 " |
| Verdigris | 15 " |
| Turpentine | 5 " |
| Creasote | 3 " |

The application of the corn collodion is to be made at least once daily, best in the evening, after a foot-bath, and after a careful paring of the indurated surface, so far as possible.

In the case of the plaster the same process may be pursued.

No. 2,009.—"**Test for Kaolin**" (L.)

The query of our correspondent is rather indefinite. He says he has searched for a "test for kaolin" but so far in vain. If he will tell us whether he wants a test to recognize the presence of kaolin in some compound (perhaps in pills of permanganate of potassium), or whether he wants to examine the relative purity of any special kind of kaolin, we shall be better able to answer. Assuming, for the present, that his object is that first named, we would recommend that he first extract the substance or compound with the usual solvents (water and acids) then to mix the insoluble residue with carbonate of potassium and carbonate of sodium, and to fuse in a crucible. The insoluble silicate of aluminium (which is really the nature of kaolin proper) is thereby rendered soluble, and converted into silicate and aluminate of the alkalies. The two constituents are then to be searched for and determined in the usual manner, for which we must refer to the text-books on analysis. By quantitative analysis, the relation of the alumina and silica, finally obtained in a dry state, in the case of kaolin will be about in the proportion of 102 of alumina to 120 of silica.

No. 2,010.—**Solubility of Antifebrin** (Dr. B.).

Antifebrin, the proper chemical name of which is acetanilide, is not much soluble in water, of which it requires 189 parts at 6° C. (43° F.). Practically, it is assumed that antifebrin requires 200 parts of water for solution. Of alcohol, it requires a little less than 4 parts for solution. A saturated solution will contain about 15 grains in a fluidrachm. Ether dissolves it readily, but is of no practical value as a solvent, as an ethereal solution is not fit to be administered. A saturated alcoholic solution is miscible with glycerin without precipitation. And if equal parts of the alcoholic solution and of glycerin are mixed, a small amount of water may be incorporated without causing any separation. But if the water amounts to about two-thirds of the original volume of either of the components of the mixture, the liquid, though at first appearing be quite limpid, will soon become filled with minutes spangles of antifebrin.

When the latter separates from its solution, it does not form an impalpable powder, but quite good-sized shining crystalline scales. Hence, it is not possible to suspend the substance in a mixture in as fine a condition as, for instance, camphor, by mixing its alcoholic solution with a watery liquid. It may, however, be suspended by making a regular emulsion.

Antifebrin is best given in substance, or mechanically mixed with wine, syrup, or elixir.

No. 2,011.—**Prescription Difficulty** (O., Mass.).

The following prescription has been sent to us with the request to state whether it is written correctly:

| | |
|---|---|
| ℞ Acidi Salicylici | gr. 80 |
| Potassii Acetatis | q. s. for solution |
| Glycerini | fl. ℥ ½ |
| Aquæ | q. s. ad fl. ℥ 4 |

S. Two teaspoonfuls every 2 hours. Hold in throat before swallowing.

This is a mixture originally used and prescribed in the service of the public hospitals of the city of New York. The quantity of acetate of potassium is given as 160 grains in the original formula, for the quantity of mixture above directed.

We cannot say that the prescription has been incorrectly written. The physician evidently had forgotten the amount of acetate of potassium, and as this is introduced into the formula not for its own therapeutic effect, but merely to act as a solvent for the salicylic acid, he was quite justified in leaving the quantity to the discretion of the apothecary, the intention being evidently that not more should be used than would be necessary for solution. When salicylic acid and acetate of potassium come together in presence of water, salicylate of potassium and free acetic acid are produced by the decomposition of a part, at least, of the acetate.

No. 2,012.—**Prescription Difficulty.**

"Novice" sends us several prescriptions, regarding which he desires advice. Among them we find some very bad spelling, no doubt due to the illiteracy of the prescriber. We shall however, not waste space on this feature, but give the correct names of the several ingredients in full, except where the original spelling requires a commentary:

| | | |
|---|---|---|
| 1. | Acidi Salicylici | ʒ ij. |
| | Sodii Bicarbonatis | ʒ i. |
| | Olei Gaultheriæ | ʒ i. |
| | Alcohol | ℥ i. |
| | Syrupi | ℥ ij. |

"Mix alcohol with the oil of wintergreen, then add to the mixture.

"S.` A teaspoonful three times a day."

Regarding this, our correspondent thinks it should be dispensed in powder form rather than in a fluid mixture, and that the prescriber ought to have omitted the liquids. He adds the query: "Can it be combined in a fluid without effervescing or bottled without exploding?"

"Novice" is informed that the acid and bicarbonate cannot be combined without effervescence. The patient who would have to take the two substances in powder, would most seriously object to have the effervescence take place in his stomach. No! the prescriber evidently meant that they should combine to a soluble salicylate of sodium. Rub the two substances together in a mortar and gradually add the syrup, previously warmed. The effervescence will soon be over. Then introduce the solution (which may not be quite clear, as it will probably contain a little undissolved salicylic acid) into a bottle, and add the alcohol in which the oil had been dissolved. Some of the oil will separate on standing; hence a "shake" label is to be put on the bottle. The oil is not put in merely as a flavor, but as an active remedy, as it contains methyl-salicylic ether, likewise of great help in inflammatory rheumatism.

| | | |
|---|---|---|
| 2. | Potassii Sulphidi | ℥ i. |
| | Aquæ Camphoræ, | |
| | Aquæ "Dilueris" | āā ℥ viij. |

M. S. Make a wash to be used three times daily.

We are asked what the last item means. Answer: nothing. It is not Latin nor anything else. It could not well be miswritten for "Destillatæ," as there would be no sense in combining distilled water with a solution of sulphide of potassium. Perhaps the word in the original has been misread.

| | | |
|---|---|---|
| 3. | Potassii Bromidi | gr. clx. |
| | Chloral | gr. clx. |
| | Tinct. Valerianæ | ʒ iij. |
| | Syrupi Tolutani | q. s. ad ℥ ij. |

M. S. Teaspoonful every six hours in a tablespoonful of water.

The taste of this was so severe and burning that the patient was in great distress every time it was given.

In this case, there being only ten grains each of the bromide and chloral to a dose, we do not understand why the taste should have been so burning. There is hardly enough alcohol in the tincture to decompose the chloral hydrate and convert it into alcoholate. The latter would float on top. We think the remedy is to dilute the dose with some mucilaginous or syrupy vehicle.

No. 2,013.—**Prescription Difficulty** (Dakota Pharmacist).

This subscriber sends the following communication:

GRAND FORKS, DAK., June 6th, 1887.

I have had occasion to prepare the following several times lately:

| | | |
|---|---|---|
| ℞ | Sodii Bicarb | ℈ iv. |
| | Bismuth Subnit | ʒ iij. |
| | Mist. Cretæ | ad ℥ ij. |

M. Sig. Two teaspoonfuls every four hours.

The person for whom it was prepared complained a couple of times of its blowing the cork out with force and the liquid flowing out in thick froth.

This morning I put up the mixture and left it standing on show case: in ten minutes cork was out and contents out. The mixture had up to then been made with Mistura Cretæ U. S. P. 80, freshly made for each mixture. I put it up again with Mist. Cretæ U. S. P. 70 (also fresh), put it in a 4 oz. bottle, but the bottle had only been put up about half an hour when it again blew the cork out.

Can you tell me what the matter is? Is it due, as I think, to some decomposition of the bicarbonate of soda?

We do not think that the bicarbonate of sodium was the cause of this, but that the subnitrate of bismuth had an acid reaction. You can easily ascertain this by washing a portion with water and testing the latter with litmus. You should permit the mixture, after being made, to remain in an open vessel or bottle for some time before sending it out corked. If you find your stock of subnitrate of bismuth to have an acid reaction, you might wash the whole of it with a dilute solution of carbonate of sodium, then with water and dry it again.

No. 2,014.—**Proprietary Articles** (H. W. B.).

We regret to say that the exact composition or mode of preparation of the Maria Earina Cologne, as well as that of the other two proprietary articles named, is not known. Many formulæ have been published for making cologne, and you will find many in our previous issues. But the peculiar aroma of any special proprietary cologne is not likely to be imitated exactly, as each manufacturer uses some special methods or combinations which are known only to him.

No. 2,015.—**Peter's and Rigney's Acetometers** (supplement to Query No. 1,961 in our July number).

Mr. Edward B. Chapman, of New York, informs us that the instrument which we described in our July number, sub query 1,961, is probably Broker's acetometer and not Peter's, as the latter is supplied with a bottle of *solution of ammonia* colored with *litmus*. Peter's, our informant states, is usually employed about here, but it is very unreliable, as the solution is liable to great variation of strength owing to evaporation.

We had received the instrument and test solution as "Peter's," but are obliged to our correspondent for his correction. Of course, there is very little difference in the tubes, the chief difference being in the liquid which, in the case of the acetometer in our possession, is a solution of soda tinged with phenolphthalein.

Mr. Chapman draws our attention to the acetometer put out by Mr. W. J. Rigney, the official inspector of vinegar at New York City. This consists of a tube similar to Peter's, but it is so graduated that it shows the percentage of acetic acid. It is accompanied by a bottle of solution of soda, and some phenolphthalein solution. The percentage, as shown by this instrument, can be easily converted into grains as follows:

Per cent multiplied by 8.9 = grains "Peter's."
" " " " 8 = grains "Potash."
" " " " 6.72 = grains "Soda."

No. 2,016.—**Solution of Citrate of Magnesium** (J. W.).

The cause of a precipitate forming in the solution of citrate of magnesium is the formation of a basic salt, which is comparatively little soluble. This precipitate is apt to form when the quantity of citric acid is insufficient.

If you will use the process directed in the last U. S. Pharm. (1880), we think you will meet with no more difficulties.

Regarding the other part of your query, we have reserved it for future answer.

* * *

**Stained Teeth** may be bleached with hydrogen peroxide. [The addition of powdered pumice, as suggested in some of our exchanges, is apt to prove harmful to the enamel.] The mouth should be well rinsed after the application, and the hydrogen peroxide should be rather dilute.

**For Blistered Feet.**—Salicylic suet is used in the German army as a remedy for foot-sores instead of the salicylic powder formerly employed. It is composed of two parts of pure salicylic acid and ninety-eight parts of the best mutton suet.—*Med. and Surg. Rep.*

**The Cocaine Habit.**—In the *British Medical Journal* are reported two cases of chronic cocaine poisoning. The patients were a man and wife who had formerly been addicted to opium, and who had taken cocaine as an antidote. They commenced with small doses, but finally took daily 2.5 grams hypodermically. The prominent symptoms were incoherence of ideas and optical delusions. They saw on their hands, on the beds and walls, small spots and worms of all forms. Complete recovery followed the discontinuance of the cocaine.

**Antiseptic Mouth-wash.**—One of the greatest living authorities upon buccal bacteriology, Dr. Miller, finds that, by using the following mixture, he could completely sterilize the mouth, cavities in carious teeth, etc.:—Thymol, 4 grains; benzoic acid, 45 grains; tincture of eucalyptus, 3½ fluidrachms; water, 25 fluid oz. The mouth is to be well rinsed with this mixture, especially before going to bed. For retail, a mixture of water and spirit is required for a presentable preparation, and it should be made much stronger, say 5, instead of 25 oz., and diluted when required.—*Chem. and Druggist.*

## FORMULAS.

### Toilet Vinegar.

| | |
|---|---|
| Oil of Bergamot | 30 grains. |
| " Lemon | 30 " |
| " Rose | 8 drops. |
| " Neroli | " |
| Benzoin | 75 grains. |
| Vanillin | 15 " |
| Acetic Acid, glacial | 240 " |
| Deodorized Alcohol | 1 pint. |

Digest 14 days, and filter.

### Violet Powder, for Sachets.

| | |
|---|---|
| Orris Root, powdered | 1 lb. |
| Musk | 8 grains. |
| Vanillin | 30 " |
| Oil of Rose | 25 drops. |
| " Petit grain | 160 grains. |
| Cologne | 4 fl. oz. |

Mix intimately.

### White Toilet Powder.

Identical with that sold by Paris perfumers, very adhesive and quite innocuous)

| | |
|---|---|
| Zinc Carbonate ("zinc-white") fine, levigated | 770 grains. |
| Venetian Talc | 770 " |
| Magnesium Carbonate | 770 " |
| Oil of Rose | 20 drops. |
| " Orris (melted) | 20 drops. |

Mix them.

### Pink Toilet Powder.

| | |
|---|---|
| White Toilet Powder | 3000 parts. |
| Carmine | 1 part. |

E. Soxhlet in *Neueste Erfind. und Erfahr.*

### Remedies for Insect Bites.

1. Dr. Mylius recommends pencils made of

Carbonate of Ammonium
Camphor and
Boric Acid.

The source from which we take this does not give the proportions; but since the ammonium salt is the chief active constituent, it should be present in largest quantity. The camphor acts as an anodyne, the ammonia neutralizes the acid of the insect-bite, and the boric acid acts as a disinfectant. The ingredients may be mixed perhaps in the following proportion:

| | |
|---|---|
| Ammonium Carbonate | 90 |
| Camphor | 2 |
| Boric Acid | 8 |

As a binding material, a dilute mucilage may be employed.

2. Bernbeck recommends a solution of

| | |
|---|---|
| Salicylic Acid | 1 part. |
| Flexible Collodion | 19 parts. |

This is reported to be even more effective than the ammonia treatment.

The same author also recommends a mixture of

| | |
|---|---|
| Corrosive Sublimate | 1 part. |
| Flexible Collodion | 1000 parts. |

3. Other mixtures besides those above mentioned have also been proposed or used. So, for instance, a mixture of

Carbonate of Ammonium
Camphor, and
Menthol

or Naphthalin in place of either the Camphor or Menthol.

Such pencils, put up in a neat case, and occupying not more space than an ordinary short lead pencil, might be a good article for sale during the mosquito season.

### Dental Soaps.

Miller gives the following directions for preparing *dental soaps*. They should be neutral or have a slight alkaline reaction:

| | |
|---|---|
| 1. Magnesium Carbonate | 1 part. |
| Orris Root, powdered | 1 " |
| Talc | 1 " |
| Castile Soap, white | 1 " |
| Oil of Peppermint | q. s. |

Make a mass of the consistence of paste, with the aid of mucilage.

| | |
|---|---|
| 2. Precipitated Carbonate Calcium | 100 parts. |
| Orris Root, powdered | 5 " |
| White Sugar | 4 " |
| Myrrh, powdered | 2 |
| Glycerin or Honey | q. s. |

Make a mass of the consistence of paste.

**Dr. Cleary's Asthma Powder** is stated to be made according to the following formula:—

| | |
|---|---|
| Pulv. Stramonii fol. | 30 parts. |
| " Belladonna fol | 30 " |
| " Potassi Nitratis | 5 " |
| " Opii | 2 " |

M. A little of this is to be burnt and the fumes inhaled.—*Chem.* and *Drugg.*

### Salol Mouth Wash.

| | |
|---|---|
| Salol, pure | 25 parts. |
| Oil of Peppermint | 5 " |
| Cloves, ground | 10 " |
| Cinnamon, ground | 10 " |
| Staranise, ground | 10 " |
| Cochineal, powdered | 5 " |
| Alcohol | 1000 " |

Digest the Cloves, Cinnamon, Staranise, and Cochineal in the Alcohol for a week, add the Oil of Peppermint, and filter. Then dissolve in it the Salol.

For use, add enough of the solution (about 30 drops) to a tumblerful of water to give it a decidedly milky appearance.—*Med. Zeit.*

### Crystallized Pomade.

| | |
|---|---|
| Olive Oil | ℥ ix. |
| Spermaceti | ℥ i. |
| Oil of Bergamot | ʒ i. |
| " Cloves | 3 drops |
| " Cinnamon | 5 " |
| " Neroli | 5 " |

Dissolve the spermaceti in the oil by the aid of heat. Place the bottles up to the neck in water as hot as they will bear. Then fill with the pomade adding the perfume immediately before pouring out. Cover the bottles as soon as they are filled, and do not disturb them until the pomade is perfectly solid. It may be colored with palm oil or oleaceous annatto coloring. The latter can be made by digesting 1 oz. of the seeds in 8 oz. of olive oil.

### Tests with Various Insecticides.

Professor Riley, Entomologist of the United States Department of Agriculture, has been experimenting upon the relative values of insecticides. His results show that ice water is not reliable as a remedy against the cabbage worm, while salt and water and saltpetre and water also failed. One part carbolic acid to 100 parts of water injured the leaves and did not kill the worms under the leaves. Pyrethrum, 1 part, and flour, 3 parts, dusted on the plants killed three-fourths of worms. Kerosene emulsion destroyed 80 per cent of all worms exposed to it, but buckwheat, ammonia, powdered alum, copperas water, carbolized lime, black pepper, tar water, and tomato water were failures. Copperas, 4 oz. to a quart of water killed all the worms. Tar water and Wolf's soap drove the margined blister beetles from beets, but they returned. One part carbolic acid and 64 parts water drove ants away permanently. Kerosene emulsion destroyed yellow-necked caterpillars. Two applications of a saturated solution of salt killed lice on lettuce. The woolly aphis on apple trees was destroyed by kerosene emulsion, which, as the results show, is about the best insecticide, but has the drawback of imparting its odor to cabbage leaves.

### Salicylic Cold Cream.

| | |
|---|---|
| White Wax | 3½ av. oz. |
| Spermaceti | 3½ " |
| Oil of Almond (expressed) | 21 " |
| Distilled Water | 3½ " |
| Glycerin | 3½ " |
| Salicylic Acid | 154 grains |
| Cumarin | 1 grain |
| Oil of Rose | 10 drops |
| " Neroli | 10 " |
| " Bergamot | 10 " |
| " Wintergreen | 5 " |
| " Ylang | 1 drop |
| Tincture of Musk (1 : 10) | 3 drops |

Prepare in same manner as cold cream or Unguentum Aquæ Rosæ (U. S. Ph.), but add the salicylic acid last, previously triturating it to a smooth paste with glycerin.—Eug. Dieterich.

### Toothache Pellets.

| | |
|---|---|
| Cocaine Hydrochlorate | 16 grains |
| Powdered Opium | 64 " |
| Menthol | 16 " |
| Althæa, powdered | 48 " |
| Mucilage of Acacia | 9 " |

Make into one-half grain pills and keep in well-stoppered vials. For use, one of these is to be inserted into the hollow tooth.—Eug. Dieterich.

### Remedy for Catarrh in the Head.

Rabow recommends the following very highly:

| | |
|---|---|
| Roasted Coffee | 50 parts |
| Menthol | 2 " |
| Sugar | 50 " |

Triturate them together to a fine powder.

To be used as a snuff.—*Deutsch. Med. Wochensch.*

### Temperature of some Freezing Mixtures.

F. Fol communicates to the *Chemiker Zeitung* the results of some experiments made to ascertain the fall of temperature caused by mixing certain liquids, previously cooled to 0° C. (32° F.). Among them are the following:

| | | Temperature produced. |
|---|---|---|
| 1. | Alcohol, ethylic, 100 Gm.<br>Snow 100 Gm. | — 17.5° C.<br>(ab. + 1° F. |
| 2. | do. with subseq. addition of Snow 100 Gm. | — 18.5° C.<br>(ab. — 1° F. |
| 3. | Alcohol, ethyl 100 Gm.<br>Water 100 "<br>Snow 100 " | — 15° C.<br>(+ 5° F. |
| 4. | Alcohol, ethyl 10 Gm.<br>Water 10 "<br>Snow 100 " | — 8° C.<br>(17.6° F.). |
| 5. | Methylic Alcohol, 100 Gm.<br>Snow 100 Gm. | — 20° C.<br>(— 4° F.) |
| 6. | Alcohol, ethyl 100 Gm.<br>Methylic Alcohol 100 "<br>Snow 200 " | — 22° C.<br>(—7.6° F.) |
| 7. | Glycerin 100 Gm.<br>Snow 300 " | — 20° C.<br>(—4° F.). |

**Lanolin and Sulphur.**—Lanolin absorbs, according to M. Rohart, about 110 times its own volume of hydrosulphuric acid gas. The sulphurated product may be easily saponified, a good soap being formed even in the cold within less than one hour. In view of the penetrating effects of lanolin and the usefulness of sulphur in skin diseases, the above compound is likely to be of great practical benefit.—After *Brit. and Colon. Drugg.*

# American Druggist

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## AMERICAN PHARMACEUTICAL ASSOCIATION.

The thirty-fifth annual meeting of the American Pharmaceutical Association was called to order in the city of Cincinnati, Ohio, on Monday, September 5th, 1887, at 3:45 P. M.

In the absence of the President, Charles A. Tufts, Dr. H. J. Menninger, the first Vice-President, occupied the Chair and introduced Mayor Smith, of Cincinnati, who in a few fitting and well-chosen words congratulated the Association upon its selection of place of meeting; referred to the good work the Association had a chance of doing, and concluded with a cordial and hearty welcome.

The presiding officer, replying for the Association, thanked the Mayor for his kind words and accepted the welcome in the same spirit as offered, saying, among other things, that this was the third time the Association had visited the "Queen City," and at each time was surprised at its rapid, continuous growth and increasing prosperity.

Dr. Menninger then read an address which he stated had been prepared only after a short notice that he would be compelled to take charge of the meeting. One of the main points referred to was the anticipation of the successful reorganization of the business of the meeting, so that there would no longer be any necessity for two national organizations of retail druggists.

Referring to the work of the Committee who had the matter under consideration, he outlined some of their recommendations and approved the idea of setting aside certain times for the consideration of special subjects; that the A. P. A., while known as a scientific body, need not necessarily devote its whole time to matters of scientific interest and thereby neglect the equally vital points of trade or commercial interests; it should represent the druggists as a whole and give all a chance in its meetings; this same thing was done in the British Pharmaceutical Association and the German Apothecaries' Society, and thus all standing shoulder to shoulder, renewed vigor would permeate through the whole body and much more could be accomplished than ever before.

He announced the Association to be in a very prosperous condition; a few years ago the treasury was virtually empty, to-day we have an overplus of a few thousand dollars. He concluded by entreating members who had opposing views to advance in the true spirit of the rising man, to have malice toward none and charity towards all.

Mr. Geo. W. Kennedy, secretary of council, read the names of candidates for membership which, under the rule, were laid over. The Secretary, J. M. Maisch, read the credentials of delegates from the different colleges, State, local, and alumni pharmaceutical associations which had been accepted by the Council, and the members of the Nominating Committee were named.

The question whether a State having two State associations was entitled to two representatives on the Nominating Committee was settled by the presiding officer.

The State under consideration, Tennessee, having two associations was entitled to but one representative, as the title of one of the associations showed that it belonged to a section of the State only and therefore was a local institution.

The Nominating Committee consists of fifty-three members, one representative from each State Association and College, and five members at large.

Mr. MacMahon moved that delegates entitled to representation on the Nominating Committee, who might arrive before the committee met, might be allowed to act on that committee. Carried.

Mr. Kennedy read the minutes of the Council meetings held since the last meeting of the association. He reported that the Formulary Committee had requested a grant of money from the Centennial fund for paying the expenses of their work; that the engraving of E. S. Wayne had been designated for the proceedings, and that members were enabled to solicit new members for the association by blanks furnished for that purpose.

Report of Auditing Committee on the ex-treasurer's accounts was read and approved, and also a motion of the council that the treasurer shall arrange with some guarantee company to furnish a bond, and that hereafter the treasurer shall furnish an alphabetical list, to be published in the proceedings, of those members who have paid their dues. Also, a motion to create a fund to be known as "The Committee on Arrangement Fund," in which should be placed a sum of $400, left over by previous entertainment committees.

The minutes of Council were approved. Mr. Zwick, of Kentucky, suggested that the Council should place all moneys in open account in a bond so as to draw interest. Prof. Remington read the by-law of the Council bearing on that subject, showing there was no open account, but all the moneys were either invested in bonds or placed in bank so as to draw interest.

Mr. W. S. Thompson moved that $4,000 be invested in U. S. bonds. Carried.

Report of Committee on plan for managing meetings of the association was read by its chairman, Prof. Remington.

[This plan involves the division of the Association, at its Annual Meetings, into sections, so arranged that the various interests, scientific, administrative, legislative, commercial, and social shall not interfere with each other.]

Mr. Brown, of Kansas City, asked if the members of the Association were to select the sections they were to go into or if each section was open to all.

Mr. Remington thought that at present it was better for the members not to divide, but only to divide the business so that certain sessions of the Association could be kept for special subjects and all members who wished could participate in each, whereby the business of the association could be expedited.

Mr. Brown also inquired if the president of the Association would occupy the chair in each section or whether each section would have a separate chairman.

Mr. Sheppard, of Mass., said each section would elect its chairman who would preside while that section was in session.

Mr. Hallburg asked the reason of dividing pharmaceutical education from legislation, making a section for each, both depended upon each other and should be kept together.

Prof. Remington said this had been duly considered, but at present it was wisest to keep these sections separate, as representatives from colleges might have enough to talk about interesting to them and not be interested in matters pertaining to Boards of Pharmacy; that other men interterested in boards of pharmacy would not wish to talk about college of pharmacy matters, and so it is better for each to have a section for themselves. We can try these new features and see how they work, and if we find it better to do so, in another year or two we can change them.

The report was then laid over until another session for discussion and action.

Mr. G. Merrell, from Committee on Entertainment, suggested that members register as soon as possible and secure their entertainment tickets before Tuesday night, so that full arrangements could be made.

Mr. Ebert moved that the Nominating Committee be directed to meet at the Grand Hotel on Wednesday evening.

The chairman, Mr. Alexander, of St. Louis, second vice-president, considered the motion not in order according to by-laws.

Mr. Nicot, of Brooklyn, thought it would be advisable for the Nominating Committee to defer action until the reportof Committee on Managing Business had been disposed of, which no doubt would be adopted at the following session. One of the provisions of that report was that the officers take their stations at the last session of the meeting.

A long discussion followed on this, and as to whether it was better to hold a session within a short time or wait until the next day, so that the report could be disposed of and the recommendations of the committee adopted. Many members participated in it and finally the point was made clear that, no matter whether another meeting was held that evening or the following day, it would be a second session and would have to be held under the working of the old by-laws. The sentiment of all was not to quibble about small matters in this respect in view of the prevalent desire of the members for a change of the order of business, and that by waiting until next morning the members could look over and study the reports. It was then moved that when the association adjourn, it adjourn to meet at 9 o'clock the following morning, and that the special order of business after installation of officers be the consideration of the report of the Committee on Management.

Mr. W. S. Thompson, Chairman of Council, reported the reception by the Council of a check from Mr. Charles A. Tufts, the ex-treasurer, for $2,195, which check balanced his accounts.

After a short discussion on sending a telegram to the International Medical Congress in Washington, the session adjourned.

### *Tuesday's Sessions.*

Meeting called to order 9:55 A.M. Dr. H. J. Menninger in the chair. Secretary read minutes of previous session, which were approved. Minutes of Council read by G. W. Kennedy. The Nominating Committee reported the following names for officers for the ensuing year:

J. U. Lloyd, Cincinnati, O., *President.*
M. W. Alexander, St. Louis, Mo., *Vice President.*
A. K. Finlay, New Orleans, La., *Second Vice-President.*
Carl Simmons, St. Paul, Minn., *Third Vice-President.*
J. M. Maisch, Philadelphia, Pa., *Permanent Secretary.*
S. A. D. Sheppard, Boston, Mass., *Treasurer.*

Mr. Lloyd begged the Association to relieve him of the nomination for president, for he considered there were others better fitted and more deserving than himself. The Association, however, would not listen to this, and on motion, the Secretary was ordered to deposit an affirmative ballot for all the officers nominated, which being done, the chair appointed ex-presidents Saunders and Thompson a committee to escort the newly elected officers to the platform.

President Lloyd, upon taking the chair, said he was not a speech maker, but only a simple pharmacist of twenty-five years' standing, that he had always followed the advice of two gentlemen given to him many years ago, and had benefited by it, of doing what work he had to do in as good a manner as possible. He said the Association would have much to bear with him and hoped they would overlook his shortcomings.

Mr. Finlay, Second Vice-President, was then introduced.

Mr. Day, of Illinois, read the report of Committee on Legislation. Four States and two territories had obtained new laws during the past year.

Mr. Hallberg asked whether Wyoming's pharmacy law was in operation. He understood it was nullified, as the board did not organize at the proper time.

Mr. Bedford, of New York, informed the Association that the law had passed and the board was organized, but owing to some want of congeniality there was no work being done.

Mr. Ebert thought the Association should outline some general law and bring it to the notice of the several States, so that there might be a general recognition of each other's certificates, as it was of great importance for a young man travelling from one State to another to have nothing placed in the way of his making a living.

Mr. Zwick, of Kentucky, considered and read Article I. of the Constitution.

Mr. Seabury, of New York, thought that passing an examination in one State did not make him fit for another, for the various boards had such different requirements. Oppressive laws, however, should be repealed.

Several other members joined in the discussion, when Professor Remington asked that it might be laid aside until after the adoption of the report of the Committee on Management, when there would be found a section for such a topic.

Mr. Macmahon, of New York, moved that a Committee on Time and Place of Next Meeting be appointed, to report at a subsequent session. Carried.

Mr. Alexander, of Missouri, and Mr. Carl Simmons, of Missouri, First and Third Vice-Presidents, were here escorted to the platform and introduced, each making a few remarks; by the request of the President, Mr. Alexander assumed the management of the meeting.

Committee on Prize Essays reported the awarding of of the Ebert prize to Emlen Painter, of New York, for his paper of last year on "Spiritus Ætheris Nitrosi."

Report of Committee on Management called, but its chairman thought it better to clear off all special business belonging to the old order of business first.

Mr. Simmons, of Minnesota, delegate to the Wholesale Druggists' Association, made a short report.

Mr. Colcord, of Lynn, Mass., reported from Committee on Introduction of Foreign Medicinal Plants, showing the difficulties he had met with in his correspondence with the Commissioners of Agriculture, and caused much amusement by enumerating the names of the plants sent him, among which were dandelion, catnip, burdock, as rare foreign medicinal plants which were thought desirable to be introduced in the United States.

Mr. Hallberg made a verbal report from the delegates to American Medical Association.

Report of Treasurer was then read and approved.

Committee on Membership, G. W. Kennedy, Chairman, reported the membership to be 1,291 this year, against 1,322 last year, the loss being due to the straightening out of the books and dropping of those in arrears.

Committee on Publication presented their reports. All these reports were accepted and referred.

The Chairman here announced as Committee on Time and Place of Next Meeting, Messrs. MacMahon, New York; Sloan, Ohio; Baker, Virginia; Fennel, Ohio.

Mr. Ebert inquired as to the Committee on Pharmacopœia, and was informed there was none appointed.

The Chairman appointed Messrs. E. A. Sayre, Brooklyn, and Whelply, St. Louis, a Committee on the Address delivered by Vice-President Menninger at the opening of the meeting.

The report of Committee on Management of Business was then taken up and adopted with slight alterations after considerable discussion.

In regard to Article 2d. (Chapter VIII.[*])

Mr. Painter, N. Y., thought there should be a limit put on the time a person could wait before accepting the invitation to become a member of the Association.

Mr. Remington thought better not put a limit until the rule had had a chance of being tried, as some persons might accept the invitation after their time had expired and finding the door closed againt them would not feel disposed to come in under another invitation; the working of the rule could safely be left to the Committee on Membership.

Mr. Seabury, N. Y., said we are putting this on trial and can easily abolish it after one year's trial if we found it was being abused; he thought it would be the means of bringing many members in and would make the Association very large.

Article 6th, Chapter VIII. Mr. Colcord thought it just to other members that the initiation fee be kept as it was and the dues reduced to four dollars. This did not meet with favor.

Chapter IX., Article 2d, Mr. Hallberg thought should be changed to read scientific section.

Article 6th, Chapter IX. was discussed and it was decided that each section could prolong its session until all its business was transacted, that each member of the Association was entitled to voice and vote in each section, that having found the old plan impracticable at present nothing was left but to try this. Members more interested in certain sections than in others could attend whichever they preferred.

In response to an inquiry it was shown that the sentiment of the committee was that eventually it would be necessary for sections to be held simultaneously. Work done in any one section could not be changed by the association at the last hours of the session.

A new amendment was here offered by Mr. Hollister that representation on Nominating Committee shall be only from State associations. The discussion upon this amendment was very long, extending over to the afternoon session and was participated in by very many of the members.

It was finally amended so that there should be *two* representatives from each State on Nominating Committee, the representative to be chosen by the different associations of each State before the meeting of the Association.

Committee on Time and Place of Meeting reported they had selected Detroit, and the 3d of September, 1888. This was afterward amended, allowing the Council to select the time, to be published in the Proceedings, so that it would not conflict with the National Wholesale Druggists' Association.

The Council was given the privilege of making such verbal alterations in the text of the amended by-laws as would not affect the sense, but would make them read smoothly.

The Committee on National Formulary presented its report (see elsewhere in this number) which after a short discussion was adopted by the Association; the work of the committee was thereby accepted by the Association and the National Formulary becomes the unofficial formulary for the whole country.

A motion made by Mr. Painter, New York, that the formulary be copyrighted was referred to the Council with power. Later in the session, the Council ordered the formulary to be copyrighted and passed a resolution allowing pharmaceutical associations, journals, and individuals to make use of it in any way, provided they did not change or mutilate the text.

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[*] The several articles referred to above read as follows:

Chap. VIII., *Art. II.* Any two members of the Association in good standing, may propose to the Council the name of any person eligible to membership and, if approved, the Council shall recommend the person named to the Association, and if the Association shall by vote invite said person to become a member his membership shall be completed by his signing the Constitution and By-laws and paying the annual contribution for the current year.

Chap. VIII., *Art VI.* (It is proposed to abolish the initiation fee).

Chap IX., *Art. II.* To expedite and render more efficient the work of the Association, four sections shall be formed as follows: 1. Scientific papers. 2. Commercial interests. 3. Pharmaceutical education. 4. Legislation.

Chap. IX., *Art. III.* The business of the Association shall be arranged so that the labors of each section shall be considered only at the session or sessions to which they are specially assigned.

For Article IV., substitute the following:

*Art. IV.* The first, second, and last sessions of the annual meeting shall be devoted to the general business of the Association, and sufficient time shall be assigned to the Association at the beginning of all other sessions to read its minutes and act on the report of Council on membership.

Add the following new Articles:

*Art. V.* At the third and fourth sessions, the business of the Section on Commercial Interests shall be considered.

*Art. VI.* The fifth, sixth, and seventh sessions shall be devoted to the reading of scientific papers and the discussions thereof.

*Art. VII.* The sections on Legislation and Pharmaceutical Education shall hold their meetings at the eighth session either at the same time or one after the other, as may be determined by the Association.

*Art. VIII.* A chairman and secretary shall be elected by ballot by each section to serve at the special meetings of said section. And the minutes of each meeting, together with all documents and papers which belong to each section, must be placed as soon as possible in the hands of the permanent secretary for publication or safe keeping.

*Art IX.* The chairman of each section shall preside at each of its meetings; shall prepare a short address treating upon the subjects connected with his section, to be read before the section at the next annual meeting.

*Art. X.* There shall be elected by each section a committee, of which the chairman of the section shall be chairman, to whom shall be delegated the duty of arranging in advance the business to come before the section at the next annual meeting, these committees in each case becoming standing committees of the Association.

An invitation to visit the Art Museum was read by the local secretary, after which the Association adjourned until next morning at 9 o'clock.

### *Wednesday's Sessions.*

Morning session called to order at 10:25. Minutes of the previous session and of the Council read and approved; under the new by-law adopted the day before, of inviting druggists to become members, the names of 109 druggists were read as having been invited.

The Association then proceeded to organize the section on Commercial Interests according to the newly amended by-laws.

Messrs. A. H. Hollister, of Wisconsin, and J. W. Colcord, of Massachusetts, were elected, respectively, Chairman and Secretary. Mr. Hollister upon assuming the chair made a lengthy speech, in which he congratulated the Association upon its new departure, for now the two Associations of retail druggists were merged in one, and all the energies of the members could be used for the advancement of the A. P. A. He looked forward to a large membership and thought it an epoch in the Association's history.

Mr. Merrell extended an invitation from Proctor Campbell to visit the soap works at Ivorydale.

The section selected the following members to constitute the Standing Committee on Trade Interests of the Association: A. H. Hollister, Michigan; J. W. Colcord, Massachusetts; E. A. Sayre, New York; W. H. Rogers, New York; A. K. Finlay, Louisiana.

A recess of five minutes was taken, after which the statement was made that the National Retail Dealers' Association had directed their Executive Committee to close up the financial and all other affairs of that Association, dividing the expenses among such State Associations as have contributed, and return the balance to said Associations. This, which virtually dissolved the N. R. D. A., was received with gratification.

Mr. Canning suggested that, as there was no work laid down for this year, the section might profitably employ its time in the discussion of the twenty-five dollars internal revenue tax, and moved that their Committee on Trade Interest co-operate with the Wholesale Dealers Association in their efforts to remove this tax and the tax on alcohol.

A little discussion took place as to whether this subject belonged to this section or the one on legislation; it was decided that each section should decide for itself what business it should take up.

The internal revenue tax was then considered for the balance of that session. Various views were expressed, many members thinking it not necessary for druggists to keep or sell liquors even for medicinal use, while as many more considered it impossible for drug stores to exist unless liquor was kept in stock. Attention was called to the fact that selling alcohol would made a druggist amenable to the tax. The sentiment of all was that liquor as a beverage should not be dispensed by druggists. Charges made that in prohibition States or counties the druggists found it profitable to evade the laws, were warmly combated by members from Kansas who showed how impossible it was for druggists to violate the law without being punished. Several members talked against the motion because it included the repeal of the 90 per cent alcohol tax, and it was finally amended so as to refer only to the repeal of the two special revenue taxes, viz., tobacco and liquor, as thus amended it was passed and the section on Commercial Interest adjourned.

Wednesday afternoon session was called to order about 3:45. The section on scientific papers was organized by the election of T. Roberts Baker, Virginia, as Chairman and Dr. A. B. Lyons, Michigan, as Secretary; these gentlemen, in conjunction with J. M. Good, of St. Louis, constitute the Committee on Papers and Queries for the coming year.

Clay W. Holmes, New York, read a paper on "Vanillin" (see next number).

The paper was discussed at length; the points dwelt upon being that, as it took one ounce of vanillin to represent one pound vanilla bean, and even then lacked the full flavor of the extract made from the bean, it was not wise to substitute. All the principles of the vanilla did not reside in the vanillin. It might do as a substitute for tonka to be mixed with vanilla. There is always a piny odor about preparations of vanillin which is disagreeable to some; that people generally were used to an extract in which tonka entered; that vanilla extract would develop a much better flavor if the bean were macerated in the menstruum for three or six months in a heated place.

Mr. G. W. Kennedy read a paper on "Fluid Extract of Liquorice" (see page 192).

In the discussion that followed, Mr. Klie, of St. Louis, thought the amount of ammonia ordered by the pharmacopœia too large, as it developed an unpleasant odor in the fluid extract after standing.

Mr. Diehl, Kentucky, referred to the careful experiments made with the fluid extracts by the Committee on Revision of the Pharmacopœia. Only after a number of trials had the best formulæ been selected.

Mr. Ebert thought the less heat used in making fluid extract of licorice the better, as it gelatinized the starch and caused a deposit; that to percolate the root with lime water when making a solid extract, licorice would furnish a product that was better fitted for tobacconists' use, as it did not have such an unpleasant taste as when ordinarily made.

Prof. Remington thought the process of Mr. Kennedy of evaporating the last portion only to a syrup was not so good as the pharmacopœial process of evaporating to an extract, for by a partial evaporation the alcohol is driven off and the syrupy liquid left is not like the portion first collected, and in many instances when mixed with it causes precipitation of some of the active principles; while, if the pharmacopœial process is followed, this will not happen. In this respect, the 1880 formula was better than that of 1870.

Prof. Lloyd said the amount of ammonia needed varied with the age of the drug.

A member thought that licorice did not deaden the taste of quinine by acting on the gustatory nerves, but that the tannin of the root united with the quinine, forming an insoluble compound.

Prof. Goode, of St. Louis, read a paper from Dr. Charles O. Curtman on Agents for making Hydro-alcoholic or Aqueous solutions of volatile Oils, etc. (see page 193).

The discussion on this paper was quite lengthy, being devoted almost exclusively to the preparations of medicated waters; the relative value of cotton, talcum, magnesia, calcium phosphate, glass-wool, and hot water being explained by their different champions.

Mr. Stevens, of Pittsburgh, favored the cotton process of the pharmacopœia, but thought a variation in process of packing in percolator better. He preferred to separate the cotton in five or six portions, place a layer of sand between each, and return the first portion of percolate, if at all cloudy. The rest will be clear.

Prof. Lloyd favored the pharmacopœial process, for it had always yielded good results in his hands.

Prof. Remington thought the great objection to the cotton was, that it is not a cleanly process; it was impossible to follow the directions to pick the cotton apart, while distributing the essential oil, without soiling the fingers; otherwise it was a very good process.

The same result that Mr. Stevens obtained by using sand could be obtained by placing a plug of dry cotton in the bottom of the percolator.

The theory of the fungoid growths coming from cotton spoken of by Dr. Curtman he was not willing to adopt until more proof had been offered; it was a microscopic plant belonging to the confervæ, and would appear in medicated waters made by any method.

He thought the change from magnesia of the 1870 pharmacopœia in the manufacture of these waters was a sudden one, and not made upon a very valid reason. The main objection to it being the fear of precipitating alkaloids when mixed with their solutions, was too remote to cause the upsetting of the custom of the entire country, and entail so much trouble on the druggists.

Mr. Hallberg said the best method was to distribute the oil upon paper pulp, put it in a bottle, and pour hot water on and agitate; when cool, filter. You would then have a saturated water, with but little trouble, which comes nearer the original method of distillation than when made by another method.

A motion was made that the subject of medicated waters made by means of carbonate magnesium, etc., be referred to the Committee on Pharmacopœia. Carried.

Paper presented from C. K. Gallagher, North Carolina, on "North Carolina Stills" (see next unmber).

The session adjourned until next morning.

### *Thursday's Sessions.*

Meeting called to order at 10:25.

Specimens of earthquake sand collected by G. J. Luhn, of Charleston, S. C., were shown.

Mr. Painter, New York, read a paper on "Irish Moss Gelatin" (see page 190), accompanied with samples.

A paper from Prof. J. U. Lloyd was read on "Pharmacists and Manufacturers" (see page 185) and discussed.

The ability of the retailers to prepare most of the galenicals, even fluid extracts, as cheaply as they could purchase them, and that, with ordinary care, they would be better than those of the large manufacturer, was coincided in by most of the speakers. Statements were made that wholesale dealers make contracts for supplies of herbs and roots in the early part of the year, but accidents sometimes happen whereby the crops are short, and the supplies fall off; they then have to go into the open market and take what they can get. This will happen to the most careful; the retailer can always select the best, for he needs but a small quantity.

Mr. Ebert thought the next revision of the pharmacopœia should reduce the strength of fluid extracts to 50%, and that would prevent deterioration. He related his experience in the preparation of glucose. When doing it upon a small scale, and using only a seven inch vacuum pan, the result was good; but when he increased the size to twenty inches it took a longer time, and the product was not so good, and now glucose manufacturers were all coming back to the smaller pan.

He charged that the pharmacopœial processes were made for the benefit of the manufacturer and not for the retail druggist. This was denied by several who wished it pointed out where there was any formula in the pharmacopœia against which such a charge could be made. The statement was made that the retailer was held responsible by the patient and physician for all the medicines he sent out; hence he should make as many of them as possible. The practice of making tinctures from fluid extracts was decried, and assertions made that city druggists do not practise that so much as the country druggists do.

Mr. Painter, of New York, read a paper on "Medicines of Medicine," which received considerable discussion, and a motion was made to send a copy of it to the International Medical Congress at Washington, which was amended to send it to all the medical journals (page 189).

A paper from A. B. Taylor, Pennsylvania, on "Weights and Measures," was read, which precipitated much discussion on the relative value of the various systems of weights and measures, and the opinion was expressed that the new system, suggested by Mr. Taylor, would rather complicate than simplify the study of this subject; that the metric system was growing in favor and eventually would be received by every one; that microscopists can work better under it than under any other method.

Mr. Hallberg offered a resolution that the Association express its opinion that at the next revision of the pharmacopœia, parts by weight should be changed to parts by volume. This, after being discussed by several, was laid over to another session.

The third session of the scientific section was held on Thursday afternoon at 3 o'clock.

A paper on "Ground Ointment Medicaments" (see page 192), by Joseph Feil, was read and after a short discussion referred to Publication Committee.

Paper read on "The Percentage of Ethyl Nitrite in the Washed Nitrous Ether of the Pharmacopœial Process for Spirit of Nitrous Ether," by W. Simonson Ohio (see page 191).

A paper by Joseph Feil, on "Bismuth and Potassium Citrate" (see page 194), was read, also one by the same author on "Solelixirs."

The subject of printing the papers in advance of the meeting was called up by Mr. Painter, who expressed his idea that there had been more interest shown by reason of its being done this year, and offered a motion to the effect that it be done each year. Some objection was shown to the motion by some who feared it would be expensive, and that some journals would be favored more than others by it. Some members thought the committee should make a synopsis of the papers and have that printed; others opposed this, for the amount of work it would cause, and the expense would be but very little less than printing the whole papers. It was suggested that the printing could be done by the same printer who published the proceedings, keeping the type standing or electrotyping it. It was also suggested that the Association purchase its own type.

It was finally settled by ordering the Committee on Papers and Queries to have the papers printed in advance of next meeting, and not to allow any individual or journal to receive a copy until they were ready to be read.

Mr. Painter called attention to the large attendance at the sessions of this section, and to the slur put upon the Association by those who said that most of the members did not care for science.

A vote of thanks was tendered to Mr. Painter for his work on the Committee of Papers and Queries.

This completing the business of the section on scientific papers, it adjourned.

The section on pharmaceutical education was immediately organized by the election of Prof. J. A. Judge, chairman, and Prof. Whelply, St. Louis, as secretary. Prof. P. W. Bedford, of New York, was elected with the chairman and secretary to form a committee.

There being no business to bring before this section, it took a recess to enable the section on pharmaceutical legislation to organize, which was done by the election of Mr. R. F. Bryant, Kansas, as chairman, and W. P. DeForest, Brooklyn, as secretary.

A committee was elected under the by-laws to make arrangements of business for next meeting, consisting of the chairman, the secretary, and Prof. J. M. Maisch, Pennsylvania.

Mr. Day, Illinois, moved the appointment of a committee to devise a plan, if the same be found feasible, for the interchange of certificates by boards of pharmacy. In support of his motion he stated he had corresponded with every board of pharmacy in the county on this subject, and their replies in many cases were favorable.

Mr. Brown, of Kansas, spoke of the necessity of co-operation to arrange the various laws, so they could be made uniform in the different States, and thought it would be necessary to confer with State associations for that purpose.

Messrs. Rogers, Kentucky; Baker, Virginia; Cumming, Massachusetts; and others took part in the discussion which was closed by Mr. Day, explaining the necessity of a uniformity in the practice of recognizing certificates. The motion was carried and the chairman given time to appoint a committee.

Mr. Nicot, Brooklyn, moved that a record be made for the information of the Boards of Pharmacy, represented in this section. Carried.

The representation was as follows: New York City, P. W. Bedford; Kings county, L. E. Nicot, W. P. De Forest; Michigan, Geo. McDonald, S. E. Parkhill; Virginia, J. W. Thompson, T. R. Baker; Kansas, R. F. Bryant; Illinois, C. W. Day, A. E. Ebert; Ohio, J. A. Nipgen, E. M. Hatton, J. Weyer; Kentucky, Wiley Rogers, R. J. Snyder; Wisconsin, A. Conrad, A. H. Hollister; Pennsylvania, A. Robbins; Iowa, Geo. H. Schafer; Missouri, M. W. Alexander; Georgia, John Ingalls; Alabama, P. C. Candidus; Florida, J. V. Spear; District Columbia, W. S. Thompson.

Mr. Eliel thought that members from States having no boards of pharmacy were not interested in this section, but his attention was called to the fact that matters pertaining to boards of pharmacy was only part of the business of this section, as all other legislation affecting druggists could be considered here also, besides the effect on members from States having no pharmacy law will be such as to make them more interested in obtaining one.

Mr. Cushman, Florida, stated that his State had a pharmacy law, but it was not obtained by the druggists. The law requires the medical college to appoint three doctors as examiners. The newly organized State pharmaceutical association proposed to get a law better fitted for druggists.

Mr. Carraway, of Tennessee, complained of men who failed in examination in other States coming to do business in his State. (Tennessee has no pharmacy law.)

Mr. Day presented the following, as a query for next year's discussion: "Should the diplomas of colleges of Pharmacy entitle holders to registration without examination?"

Mr. Hallberg, Illinois, presented the following: "Give an outline of a pharmacy law embodying all desirable features."

The section then adjourned.

### *Friday's Session.*

The last session of the Association was held Friday morning, the minutes of the Council were read. The main business of the Council had been to accept a bond of $5.000 from the Guarantee Company of North America on behalf of the treasurer; to take action on the names of druggists invited to membership; to order that no more portraits be placed in the Proceedings; and that the Association be incorporated.

Prof. Diehl, Kentucky, reporter on Progress of Pharmacy, read his report.

Committee on Drug Market of last year, Mr. Mason, Canada, chairman, presented their report.

The Nominating Committee presented the names of the following gentlemen for members of Council: J. M. Good, Missouri; L. C. Hopp, Ohio; W. Dupont, Michigan; and of J. Verner, Detroit, as local secretary. Upon ballot they were elected.

A vote of thanks was passed to the local committee, to the ladies of the Cincinnati druggists for their kind attention to the visitors; also a similar vote to the Mayor and to the citizens.

Resolution was passed that the proceedings be issued before January 1st.

A delegation was appointed to visit the Wholesale Druggists' Association next year.

Mr. Carraway offered a resolution inviting female druggists to join the Association, which, after discussion, was laid upon the table.

Mr. Macmahan moved that three prizes be offered to the exhibitors next year. Carried.

Mr. Cumming moved that the Committee on Commercial Interests co-operate with the Wholesale Druggists' Association in the matter of Mutual Fire Insurance.

Mr. De Forest moved that, as far as possible, the Council be directed to have all reports of officers and committees printed previous to the annual meetings. After some discussion this was carried.

The Council reported the election of W. H. Rogers, Middletown, N. Y., and G. W. Kennedy, of Pennsylvania, as Chairman and Secretary of the Council.

The Association then adjourned to meet in Detroit next year.

### NOTES OF THE MEETING.

The meeting just concluded was probably one of the most successful in the history of the American Pharmaceutical Association. The number of members in attendance was quite large; the interest manifested at each session was very gratifying. There seemed to be but little bickering, and but little of that waste of time that has characterized the meetings for several years past.

Many had come prepared to be grieved at what was feared to be a lack of attention on the part of the officers to their duties; but they were very soon convinced that these officers had well filled their trusts, and in a manner that redounded not only to their own honor, but to the best interests of the Association. The finances of the Association are in very good condition, better than ever before. The membership is on a solid basis. There were seventy new members elected this year under the old by-laws, which were as many as were elected the last two years together. Eighteen delegates became members by signing the by-laws and paying dues; this has not been known to occur before.

The new arrangement of order of business, dividing in sections, met with universal favor, for now every one knows when the particular branch that he is interested in will be brought up. The papers received more attention than ever before, and the number of members who stayed to listen to them was very large.

The number of names of druggists who were invited to membership under the new by-laws is five hundred, and many think that four-fifths of them will accept.

The merging of the National Retail Druggists' Association into the A. P. A. allows all energies and influences to be directed to one common object, the advancement of the Association, and it is believed by many that ere long the Association will number many thousands.

The druggists of Cincinnati vied with each other to make the visitors' stay pleasant, and they succeeded, for the reception in the hotel, the concert at the Grand Opera House, the rides for the ladies, the presentation of the spectacular pageant of Rome under Nero, and the ride and banquet on Friday, to say nothing of the evening visits to the places "over the Rhine," filled up the time between the meetings in a very enjoyable manner, and made one almost forget the sultriness of the climate, the smokiness of the air, and the dirt in the streets. All hail, Cincinnatians, you did your part nobly, and we will always carry a kindly remembrance of you in our bosoms!

## Pharmacist and Manufacturer.*

BY J. U. LLOYD, CINCINNATI.

At the meeting of the Ohio Pharmaceutical Association, Mr. L. C. Hopp introduced a resolution in support of a class of pharmaceutical preparations to be made from plants, upon the principle used in making fluid extracts and tinctures, but to represent only 50 per cent of the drug.

It would be out of place now to argue for or against that motion; suffice it to say that, owing to neglect of business on my part, and absence from that session, I missed the opportunity to obtain the views of the talented members who expressed themselves regarding the subject. My excuse now for bringing the matter before our Association is to review a phase of the argument that was presented at that time, and which I have long studied, and more than once intended to venture an opinion upon.

During the argument Mr. Hopp, in substance, remarked that manufacturers of pharmaceutical preparations on a large scale thought that they could better produce—or they lead pharmacists to that impression—fluid extracts representing the drugs, pound to pint, than pharmacists with ordinary appliances. This phase of the argument was not debated at our meeting.

In considering it, I must announce at the outset that my sphere of labor, perhaps, is not of such magnitude as to make me an authority, and that this paper is written both to gain information and to record my experience, which, in a small way, covers much ground in species of plants worked, and also, in many instances, in the preparation of moderately large quantities.

I exclude the profit and loss side of this question. The query is manipulation—the advantage one has over the other in the quality of the product.

It must be borne in mind that this is not the consideration of some substance that is involved by long-continued investigations of a semi-proprietary nature; it is not a comparison of something obtained on a large scale and originated outside of legitimate pharmacy, and which the pharmacist designs to imitate; and it is not an obscure material, the working process being unknown. It is, upon the contrary, a simple product designed to be readily prepared by ordinary pharmacists, with usual appliances, and if any imitation is necessary, it must be from those who vary from the standard and deviate from the officinal preparations. Then the question is, What real advantage has the trade worker over the pharmacist?

1. The quality of material is of primary importance. In procuring such of prime condition, has the large operator any advantage? That he may obtain more or less of exceptionally nice specimens of drugs is evident, but can he as easily procure a large uniform quantity, all of prime drugs? Is it not probable that considerable unevenness must exist in many instances? I doubt if our wholesale druggists are often so placed that they cannot supply their patrons with a pound or a moderate amount, choice, of almost any drug, for selections are easily made in a small way. I doubt also if large operators, as a rule, do not experience more or less trouble in obtaining their supplies, and the question arises, Who has the advantage over the other? I am now convinced that the pharmacist can usually obtain drugs of first quality, if so desired, in amount sufficient for his requirements, and that the manufacturer on an average can do no better.

2. *Improved Apparatus.*—More or less is heard about the advantages enjoyed by manufacturers by reason of improved and complex apparatus. We should not forget that the object is to produce a counterpart of a preparation that is easily made with ordinary apparatus in quantities of about one pint, according to the recognized authority. If the manufacturer improve his apparatus, it must be to overcome some disadvantage he labors under, or to give him a pecuniary benefit. If he produces either a stronger or a weaker preparation than is yielded by the U. S. P. amount by means of alteration in method, the question arises, Is the substance labelled true to name if it is thrown upon the market under the officinal appellation of fluid extract? Is not such improved apparatus, if it exist, designed for the simple purpose of enabling the operator on a large scale to imitate a product that is standardized on a small scale? Remember, I exclude economy; the question is product. My view of the matter is that pharmacists, with ordinary opportunities, can as easily increase the strength of a fluid extract beyond the standard as the manufacturer, but that such course is reprehensible. If manufacturers employ apparatus that yields a product different from the officinal, they, too, are subject to criticism. In my opinion, simple percolation is as yet unexcelled, and my experience with complex forms of apparatus has invariably led to their rejection and a return to the simple percolator.

3. Experience and skill are necessary in both cases. The large operator has quantity advantage, but this with changing proportions really is a problem to study. Besides, magnitude of manipulation is not a criterion of excellence. It is surprising to note how little some of us really know about the true inwardness of subjects by which we are actually enveloped. Who will deny that workmen may be surrounded by tons of material, and still be ignorant of the properties of such substances beyond what they learn from outward sources? Admit that each is equally skilled, the one in working small amounts, the other in quantities, and we have not solved the problem. The large operator is a manager, the small operator the workman. The large operator must trust his employees to moisten, handle, pack, and often percolate and finish. The pharmacist may with his own hands begin and end the operation, and instead of simply overseeing the process, he really is the pharmacist that makes the preparation. The large operator's percolators are opaque, and he works in darkness; the small pharmacist uses glass and can observe the operation as it progresses. It is sometimes advanced as an argument that pharmacists often have imperfect pharmaceutical educations; cannot it be said that manufacturers are sometimes entirely dependent upon employees, and do not even make a personal pretension to pharmaceutical education? I have heard it advanced that pharmacists neglect their business when they make preparations, and are too much interrupted to prepare these simple pharmacals; upon the other hand, it may perhaps be said that, if personal attention to manipulation is necessary, many manufacturers, whose names appear on their labels, have reason to pass that feature of the argument.

My experience teaches that both skilled and unskilled labor is to be found in each direction. I would not attempt to draw a distinction. Some manufacturers are accomplished, careful pharmacists. Admit as much, and who will assert that the equal to any manufacturer is not to be found among pharmacists? That some who conduct pharmacies are not at all pharmacists is indisputable, but who will advance as an argument that manufacturers have an advantage in this direction? The names over the doors of each, pharmacy and factory, are sometimes liable to mislead: in the one case, an unnamed clerk being the real pharmacist, in the other case, an unknown workman being the real manufacturer. In both instances, the name on a label is a misnomer.

If I should venture an opinion, I would say the average pharmacist is as skilled as the average trade manufacturer. We have examples of the highest integrity and of superior excellence in both directions. I doubt, however, if any manufacturer of pharmaceuticals of my personal acquaintance would thoughtfully sanction the "I am better than thou" argument as a commendation of his wares.

4. Admitting, for the sake of argument, that both the arge and small worker stand on an even footing regarding the foregoing phases of the subject, and we come to the real comparisons of working quantities. Large operators work from 100 to 1,000 pounds of the drug at a time.

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* Paper read at the Annual Meeting of the Amer. Pharm. Assoc. at Cincinnati.

In doing so, they have the benefit of the increase of contact that may be obtained from depth of both material and menstruum. However, it is now, in my opinion, a question as to whether this advantage is not more than counteracted by the fact that, in a great many instances, it is impossible to properly percolate such large masses if the material is in fine powder, and, in consequence, the operator on a large scale is induced to employ the drug in a very much coarser condition than would be employed by pharmacists. Such coarsely ground drugs are really mixtures of various degrees of fineness, and this places him at a decided disadvantage and introduces an element of uncertainty regarding the actual condition of the drug under manipulation. All who are familiar with operations of this character will, I think, agree that such unevenly ground drugs are inclined to be extracted without much regularity as regards comparisons between the different degrees of fineness. This is evident, but there is one important factor to prevent such being accomplished that I do not remember to have ever heard mentioned, and possibly it has been overlooked by others. I refer to the fact that, according to my experience, the fine powder under these conditions is extracted *but little, if any, faster* than the coarse, and scarcely less thoroughly, and that the drug might about as well all be coarse as partly coarse. The explanation is simple when we think that the menstruum pervades all parts of the mass, and whatever may be its condition, saturates all parts of the material. Thus, instead of depleting the fine particles and then gradually attacking the coarser, it carries extractive matter from the coarse to the fine, long after the fine would have been exhausted, had there been no coarse material present. In other words, a uniform menstruum maintains a uniform rate of extraction, and the fine powder cannot be depleted faster than the coarse. I am of the opinion that the pharmacist in pharmacopœial quantities is not at a disadvantage.

5. Admit, however, that the conditions are identical as regards the powdered drug, and we come to the moistening of the drug. All agree, that in order to insure uniformity of extraction we must have a uniformly moistened powder, that is, it must not be unevenly dampened. In a small way, this moistening is readily accomplished by admixture in an evaporating basin or a large mortar. Upon the contrary, in a large way, either specially contrived apparatus is necessary or much manual labor is required. At the best, it is a question as to whether any will argue that the large operator has the advantage. I do not know of any.

6. After the powder is moistened, it must be evenly pressed into the percolator. If it is firm in any section and loose in another, uneven percolation results. Is it easier to pack a large than a small percolator and obtain a uniform pressure upon the powder operated upon? This I doubt. Upon the contrary, I can more satisfactorily obtain an even pressure with small, narrow percolators than with large ones. I do not think the operator has an advantage over the pharmacist in this direction.

7. However, admit for the sake of argument, that both a one-pound and a 1,000-pound batch of material is in the condition of a fine powder, and that both are so moistened and packed as to percolate readily. The contact between the menstruum and powder, under precisely similar conditions, appears to be very much in favor of the larger quantity, but is it really so in practice? In order to produce such advantage would it be necessary that both should percolate with the same rapidity? If it requires 24 hours to obtain a pint of percolate from 1 pound of material, should it require 24,000 hours with the 1,000-pound batch, or should 1,000 pints of percolate be obtained in 24 hours? I do not propose to argue in favor of attempting to extract 1,000 pounds of material in one day. Neither do I hesitate to say that there is not in my opinion a manufacturer in America with facilities or patience sufficient to permit him to consume three years of time with a single percolate. Therefore, I accept that in large quantities manufacturers agree to increase the flow sufficiently to obtain the percolate in a reasonable length of time. Now the question arises: Does this increase of rapidity of percolation counterbalance the increase of contact gained by the respective heights of both menstruum and drug that the large batch occupies? In my opinion, the advantage in contact is counterbalanced by increased rapidity of percolation where large amounts are employed. I would not hesitate to attempt to conduct the operation of percolation with one pound of the properly prepared powder in confidence that the result would be as satisfactory as where I use 1,000 pounds.

8. Evaporation of the second part of the percolate is necessary in either case. As the amount of liquor increases by ordinary methods of evaporation, the large operator has to contend with a more continued application of heat out of proportion to that employed by the pharmacist on a small scale.* Perhaps the advantages of vacuum or other methods said to be enjoyed by some manufacturers will counterbalance the disadvantages they labor under in the direction I have named, but we have no direct figures to base our remarks upon. As I now look at the matter, the heat employed in the majority of cases wherein the officinal percolate is evaporated is not sufficient to injure the product. If trade operators are forced to devise special forms of apparatus, it is because of the disadvantage they labor under and to meet the pharmacopœial methods.

To sum up, I am convinced that pharmacists can prepare fluid extracts, of the present officinal strength, without difficulty and of standard quality. The manufacturer on a large scale, in my opinion, labors under disadvantages that are more than sufficient to counteract his advantages. Speaking for myself, I will say, one of the problems I have to contend with on a large scale is that of a positive knowledge of the product, as compared with a standard made in small amount. Also I have the uncertainties of manual labor, and the darkness of opaque percolators, and it seems probable that others are also encompassed with these perplexities. I do not hesitate to say, if the manufacturer can produce fluid extracts of pharmacopœial strength, the pharmacist will have little trouble in doing so. Care, attention, experience, education are required to produce standard fluid extracts in small amount, and, in addition, manufacturers have aggravations that are unknown to pharmacists.

That hundreds and, perhaps, thousands of persons who conduct apothecary stores will always purchase such simple preparations as fluid extracts is undeniable. That in many instances those of excellent pharmaceutical attainments and high standing will do so is probable. Circumstances seem often to necessitate such dependence on the trade maker, and I do not deny that forcible arguments can often be advanced in favor of qualified men purchasing instead of making. However, I, for one, am not now willing to admit that those courtesies, when extended to manufacturers, are in consequence of an inferiority of the pharmaceutical profession. My study of this subject leads to the opinion that trade makers of pharmaceuticals neither can nor do make better fluid extracts than the careful pharmacist. If our pharmacists find it to their interest to purchase instead of manipulate, manufacturers should, and, I believe, as a class, do appreciate the courtesy. It is a graceful compliment that these gentlemen extend by saying, "We have confidence that your products are equal to those we prepare ourselves," and should be so considered. Let us look at this matter in its proper light. Consider the fact, for fact it is, that the *standard* is made by pharmacists to conform to a product that can be easily made in small quantities by ordinary pharmacists. Let us not strike a blow at professional attainments by encouraging those who are interested in obtaining pharmaceutical educations in believing that they cannot, in pharmacopœial amounts, produce reliable pharmacopœial preparations. Let us not by any means, in so simple a class of preparations as the fluid extracts, permit such an opinion to become rooted in the minds of our young men. Perhaps in this matter I will stand nearly alone. I have reason to believe that many of my friends, both manufacturers and pharmacists, will differ with me. However, my opinions result from as careful a study of both sides of the question as I have been able to make with my opportunities, and I conclude that in officinal preparations manufacturers should aim to produce preparations that are only equal to those of the pharmacopœial standard. It seems, as I now view the subject, that from the *quality* stand it is a little presumptuous for manufacturers to say, "We make better preparations than you can," when the fact is, all that they can pretend to do and conform to authorized standards, is to *equal* the officinal preparations.

In thus considering this subject, I have endeavored to present the several phases as I have been confronted with them and as I present them to my classes. It strikes me that an impression that has been firmly engrafted in the minds of pharmacists should not be permitted to pass unchallenged without thoughtful consideration regarding the foundation of the assertions. The professional character of the pharmacist suffers enough, to make the best of it, and we should call a halt when questions arise as to our capacity for making good medicines of the simplest character. Take from us the privilege of making fluid extracts, tinctures, ointments, cerates, plasters, and such substances and we are undermined. That we are, to an extent, responsible for the present general opinion is evident, but we must not become pharmacists by name only. The appellation "Hamlet with Hamlet left out" is not pleasant to contemplate.

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**The Pharmacopœia Committee,** appointed by the British General Medical Council at its recent session, consists of Dr. Quain (Chairman), Sir Dyce Duckworth, Dr. Aguilla Smith, Sir Walter Foster, Mr. Brudenell Carter, Mr. Collins, and Mr. Macnamara.

A DETROIT lady has sued a photographer for $10,000 damages for distributing her photographs as an advertisement for a cosmetic.

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* See Amer. Pharm. Proceedings, 1886.

## Commercial and Pure Amyl Nitrite.*

BY W. SIMONSON, OF CINCINNATI.

QUERY 34.—Samples of amyl nitrite have been found nearly free from the nitrous radical: what is the percentage of absolute amyl nitrite ($C_5H_{11}.NO_2$) in the best specimens of commerce, and how near a pure nitrite should a medicinal article approach?

The pharmacopœia gives a good description of the physical properties of this substance, tests for the identity of its parts, and fixes the limit of acidity, but does not name the process by which it should be prepared, nor adopt a standard of strength. The objects in answering this query are to show the average percentages of total nitrites, in terms of amyl nitrite, in the commercial article, thus determining the limit of strength practicable to adopt; to compare the results obtained by the assaying with those gotten by fractional distillation; and to verify the statement that this substance should be the product of the reaction between nitrous acid gas and well purified amyl alcohol.

*Estimation of Amyl Nitrite.*

Whenever this term is used, the statement refers to total nitrites calculated as amyl nitrite, $C_5H_{11}NO_2 = 117$. In such a complex mixture as the commercial article, more than one nitrite is usually present.

The method of assay is that of Allen, described in "Commercial Organic Analysis," p. 150–151, and detailed in the Proceedings of this Association for 1886.

Forty-one packages from seven makers were examined for percentage of amyl nitrite and subjected to the officinal tests. Results are shown in the following table, in which the first three are arranged in the supposed order of the quantity used, nothing being known concerning the remainder except that the seventh, being the production of a foreign maker of the highest reputation, is probably well distributed. If the two samples were fairly the average of other markets, our supply, from two domestic makers, is unequalled in strength and quality. According to the estimate of those from whom supplies were obtained, number 1 produces from sixty to ninety per cent of the total quantity consumed, yet it is the poorest of all those having an extensive sale.

| Maker. | Number. | Per cent total nitrite as $C_5H_{11}NO_2$. | Sp. gr. at 15° C. water at 15° C. = 1,000). | Total acids as $HNO_2$. | Boiling Point. | Water. | Color. |
|---|---|---|---|---|---|---|---|
| A | 1 | 18.31 | .8550 | .... | .... | — | Very pale yellow. Lighter th'n straw |
| | 2 | 13.44 | .8550 | .... | .... | 00 | |
| | 3 | 13.05 | .8515 | .... | .... | — | |
| | 4 | 20.75 | .8541 | .... | .... | 00 | |
| | 5 | 22.2 | .8588 | .... | .... | 1–2 minims. | |
| | 6 | 20.0 | .856 | .... | .... | 2 minute drops. | |
| | 7 | 13.7 | .8519 | .... | Beginning at 70° C., rising irregularly to 128° C. | " | |
| | 8 | 23.4 | .8548 | .... | | 00 | |
| | 9 | 12.0 | .8517 | .... | | 00 | |
| | 10 | 23.8 | .8540 | ... | | 2 minute drops. | |
| | 11 | 18.8 | .8531 | .... | .... | " | |
| | 12 | 14.25 | .8552 | .... | .... | About ½ minim. | |
| | 13 | 17.30 | .8531 | .... | .... | 00 | |
| | 14 | 14.2 | .8454 | .... | .... | 00 | |
| B | 1 | 84.0 | .8778 | .57% | .... | 2 minute drops. | |
| | 2 | 85.8 | .8746 | .... | .... | " | |
| | 3 | 85.0 | .8767 | .... | .... | " | |
| | 4 | 85.0 | .8746 | .... | .... | " | |
| | 5 | 84.0 | .8750 | .... | .... | " | |
| | 6 | 86.9 | .8760 | .... | 90° C., rising quickly to 96° C. then constant. | " | |
| | 7 | 84.5 | .8780 | .... | | " | |
| | 8 | 86.5 | .8760 | .... | | " | |
| | 9 | 85.8 | .8760 | .... | | " | |
| | 10 | 79.5 | .8781 | .... | .... | About ½ minim. | |
| | 11 | 96.0 | .8814 | .... | .... | 00 | |
| | 12 | 83.1 | .8814 | .... | .... | 2 minute drops. | |
| | 13 | 85.6 | .8765 | .. | .... | " | |
| C | 1 | 75.4 | .8822 | .23% | .... | " | |
| | 2 | 73.9 | .8830 | .... | .... | About ½ minim. | |
| | 3 | 75.6 | .8822 | .... | 86° C., soon constant at 96° C. | " 1 " | |
| | 4 | 83.4 | .8800 | .... | | 2 minute drops. | |
| | 5 | 76.5 | .8822 | .... | | " | |
| | 6 | 82.7 | .8800 | .... | .... | " | |
| | 7 | 74.2 | .8831 | .... | .... | " | |
| D | 1 | 39.0 | .8613 | .... | .... | " | |
| | 2 | 46.2 | .8557 | .... | .... | " | |
| E | 1 | 00 0 | .8882 | .... | .... | " | |
| | 2 | 0.00 | 1.0030 | .... | .... | " | |
| F | 3 | 65.8 | .8844 | ... | .... | About 2 minims. | |
| G | 1 | 67.7 | .8830 | .... | .... | Few minute drops. | |
| | 2 | 66.7 | .8830 | .... | .... | | |

"Sp. gr. 0.872 to 0.874" (U. S. Ph.).

The specific gravities given in the table were taken at 15° C., the standard volume being water measured at the same temperature.

The specific gravity of pure amyl nitrite is given variously by different authors, as between 0.877 and 0.902, the temperature of the standard volume being unknown.

Of commercial specimens, number 11, maker B, of 96 per cent purity, had sp. gr. 0.8814, but the influence of the small diluent is unknown; those of C next in strength, varied between 0.880 and 0.8831, higher sp. gr. going with lower strength; those of A lowest in strength, between 0.856 and 0.845, lower sp. gr. usually followed by lower strength. Number 1, E, had sp. gr. 0.8882, yet contained little more than a trace of nitrite.

A specimen made by this operator, carefully purified by fractional distillation until of constant boiling point, and believed to be nearly free from other nitrites and amyl ethers, has the sp. gr. 0.88135.

If sp. gr. of amyl alcohol, which forms the largest part of the diluent in most specimens, be accepted as 0.818, and that of amyl nitrite as 0.8814, then the officinal sp. gr. 0.874 would refer to a mixture containing about 88 per cent amyl nitrite and sp. gr. 0.872 to one containing about 85 per cent. But sp. gr. of most commercial samples can be no certain indication of quality, since other amyl ethers than the nitrite are present, especially if made by the nitric acid conversion.

"It boils at about 96° C." (U. S. Ph.).

The statements of the books on the boiling point of this ether are as greatly conflicting as those regarding specific gravity.

The boiling points of the first three makes given in the table, were obtained by using 4–5 C.c. contained in a narrow test tube about 12 Cm. long, fitted with a cork carrying a short delivery tube and a good thermometer, the bulb being just above the surface of the boiling liquid, heated by an oil bath.

In taking the boiling point of the complex liquid usually met with, more accurate and useful results are obtained by using a much larger quantity of liquid, about 15 C.c., the containing tube of such size as to leave the smallest allowable space between surface of liquid and the cork bearing the thermometer. The boiling point is taken as that temperature at which all air has been driven from the tube and ether has fairly begun to escape. The presence of fractions vaporizing much below 96° C. may then be shown, but if the quantity of liquid be small and the air space large, these will have been boiled off before the time of reading the temperature.

The specimen prepared for the purpose of this paper was vaporized completely at 96° C., the temperature rising slightly and very quickly at the close, due to overheating the vapor.

"On shaking 10 C.c. of nitrite of amyl with 2 C.c. of a mixture of 1 part of water of ammonia and 9 parts of water, the mixture should not redden blue litmus paper (limit of free acid)." This is the limit of total acidity allowed by the German and U. S. pharmacopœias, and corresponds to 63 per cent $HNO_2$.

In performing this test, the dilute ammonia is best measured into a tube holding but little more than the entire mixture, to exclude air as far as possible, the nitrite then measured in, and the tube closed by a cork bearing a small piece of litmus paper. If, after shaking, the paper is blue, the excess of alkali can be estimated, and the acidity calculated by difference. Results by this method, if not accurate, are fairly constant, and may be nearly correct.

All samples of A were much above the limit, due to exposure in making other tests; of B, slightly above half the limit; and of C, about the same as A.

A freshly-opened package of A gave 57 per cent $HNO_2$; of B, 23 per cent; and C not estimated, for lack of material.

"It should remain transparent, or nearly so, when exposed to the temperature of melting ice (absence of water)."

The results in the table were obtained by exposing the vials to a bath of ice-water for eight hours, and then noting the apparent quantity of water separated. Very few specimens stood this test absolutely, but the quantity of water was, in most cases, very small. Only in a few did it exceed about one-half minim from about three-fourths ounce of ether. The test, however, does not prove the absence of water, unless the sample is very rich, and contains but a small proportion of amyl alcohol. Number 8, A, when further examined by distillation, yielded over 2 per cent of water, with fractions below 90° C., and fully 3 per cent below 100° C. In the same way, 1, B, gave less than one-fourth per cent, and 4, C, not more than a trace, the diluent appearing to be nearly free from amyl alcohol, and to be mostly amyl ethers other than the nitrite. The presence of water is properly considered to increase decomposition; and as it appears impossible to separate it by a temperature of 0° C., in presence of amyl alcohol, a well-made article should contain but little free alcohol, and the proportion might be limited by increasing the specific gravity so as to be from "0.878 to 0.881," insuring the absence of more than 5 per cent. A nearly pure ether keeps better than a poor one, as water taken up by washing can be removed almost completely by a temperature of 0° C.

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* This paper was to be read at the Annual Meeting of the Ohio Pharm. Assoc., but as the MS. could not be completed in time by the author, it was afterwards ordered to be printed in the proceedings. We are indebted to the author for a copy. ED. AM. DR.

### *Fractional Distillation.*

The results obtained by the assay process give no indication of the quality of the substance under examination, but refer simply to total nitrites calculated as amyl nitrites. Further knowledge of its composition may be obtained by a fractional distillation.

The apparatus used consisted of a wide-necked distilling flask, holding about 800 C.c., on which was mounted a 5-bulb Henninger tube, the delivery of which was connected with a small bent tube passing through a bath of ice-water, and vertically into the tared receiving flasks, also cooled by ice. The bulbs of the fractionating tube were not supplied with cups of gauze, as these could not be obtained for the first distillation, and it was necessary to treat all by an uniform process. This defect was compensated, as far as possible, by conducting the operation very slowly, the distillate passing, at all times, slowly in single drops, the ratio of flow-back to distillate being twenty or more to one, seldom falling to ten to one. Separations effected under these conditions, while very incomplete, are sufficient for the present purpose, but the principal value of the work has been to establish a series of boiling points, and state the assay values and other properties of fractions taken at succeeding temperatures.

The boiling point of this ether is described by some as being constant, and by others, as beginning at 90° C., and rising to 100° C. or beyond. According to Allen ("Com. Org. Analysis," p. 160), "a fairly pure article will yield fully 80 per cent of its original measure between 90° and 100° C., and should leave no very considerable residue at the latter temperature. . . . Incomplete distillation at 100° C. is due chiefly to the presence of amyl alcohol, heavy traces of which may apparently be found by partial decomposition of the nitrite during the distillation. Hence commercial amyl nitrite of good quality may leave a residue of 5 to 10 per cent at 100° C.

425 Gm. of A, 445 Gm. of B, and 440 Gm. of C were fractionated under the described conditions. The data obtained are set forth in tables [which are omitted here, for want of space, but] of which the essential features are specified below. In distilling B, the process had to be forced somewhat, and the separation is less perfect than it would have been could more time have been allowed, but the remaining two were treated with all care possible.

Ether A assayed the equivalent of 23.4 per cent $C_5H_{11}NO_2$, being the richest of that brand. Yet all nitrites came over at 90° C. Of the three fractions, the first produced but a slight effect on the head; the second, a greater effect than the original, but differing in kind; and the third, a still greater effect, yet far inferior to that of the pure ether, and not nearly identical with it.

The 90°-100° C. fraction amounted to less than five per cent, the exact amount unknown, as the fractionating tube broke at 93° C., involving some loss. But the fraction had not the peculiar effect, and its vapor was quite colorless.

The 128°-132° C. fraction formed nearly one-third of the original quantity, and had the characters of an impure amyl alcohol.

Ether B gave less than 6 per cent of distillate below 90° C., and left but 14 per cent at 100° C., and this might have been reduced by a slower distillation. Both specific gravities and assay values fell gradually toward the close, pointing to small and increasing proportions of amyl alcohol.

The small fraction passing between 128° and 132° C. was mostly amyl alcohol, and contained some amyl ether. Residue at 132° C. was a thin, blackish liquid.

Of fractions collected between 90° and 100° C., that including the temperature of 96° C. had greatest physiological effect.

Ether C is known to have been prepared by the nitric-acid conversion.

Throughout the fractions, both assay values and specific gravities are reduced toward the end. The variations in the latter are much less than is usual, indicating the absence of much amyl alcohol; and the 127°-132° C. fraction was of full brown-yellow color, had high specific gravity, and did not induce cough.

The results obtained may be compared as follows:

| Maker | Distillate below 90° C. | Between 90°-100° C. | Above 100° C. | Total | Loss |
|---|---|---|---|---|---|
| A | 23.2 | About 5.0 | 67.6 | 95.8 | 4.2 |
| B | 5.75 | 80.1 | 13.05 | 98.9 | 1.1 |
| C | 8.85 | 75.1 | 15.65 | 99.1 | .9 |

They show that two domestic brands of amyl nitrite are of fairly good quality, and are made from a moderately well purified amyl alcohol, or are carefully fractionated from the first product. But one make, and that the one most largely consumed, is evidently prepared from a very impure alcohol, or, at least, is put on the market unrectified. The mixture is wholly unfit for medicinal use, and this may account, in part, for the neglect into which this article has fallen in therapeutics.

Regarding the preparation of this chemical, authors usually quoted are at variance, if not contradictory. The weight of authority seems to be in favor of the nitrous acid conversion, and, more recently, Williams and Smith have shown the necessary details for obtaining the largest yield and purest product (*Pharm. Journ. and Trans.*, Dec. 12th, 1885; *Am. Journ. Pharm.*, Jan., 1886). These experimenters recommend acting upon purified amyl alcohol with the gas given off by reaction between nitric acid of sp. gr. 1.350 to 1.360 and arsenious oxide, the alcohol being carefully kept cool during the conversion.

In accordance with this plan, a quantity of amyl nitrite was prepared. Much difficulty was found in getting a good alcohol, suitable for this use. Much of that met with appeared to be mainly the tailings of the rectification of fusel oil. The best commercial specimen obtainable had sp. gr. 0.8181, and boiling point (taken on a very small quantity) beginning at 125° C., but soon constant at 127° C. These properties indicating a well-rectified product, it was used without further purification, but afterward proved to have been very impure.

The apparatus used consisted of a retort about half filled with arsenious oxide in coarse powder, connected to a bottle of same capacity, to the bottom of which the red gas passed and thence into a tall narrow cylinder filled not more than two-thirds full with amyl alcohol. The retort is gently heated and the mixed gases, passing out at a temperature always below 30° C., deposit in the empty bottle any small quantity of liquid carried over before acting on the alcohol, but constantly cool by standing the generator in water. The passage of gases is stopped as soon as the contents are faintly greenish tinged. After regulating the heat, conversion goes on without further attention except stopping the process. The liquid remains clear up to a strength of about 50 per cent, when water, formed by the reaction, renders the liquid turbid and slowly collects at the bottom of the generator.

18.75 ounces of amyl alcohol yielded 24 ounces of nitrite or 96 per cent of the theoretical yield. After washing well with a 20-per-cent solution of sodium carbonate, the product assayed, in two estimations, the equivalent of 102.2 and 101.0 per cent, $C_5H_{11}NO_2$. Rectified in an ordinary retort, 20 per cent passed under 90° C., 75 per cent followed under 100° C., leaving a residue of 1.2 per cent assaying 2 per cent amyl nitrite.

The first fraction had sp. gr. 0.8869 and assayed 107.5 per cent amyl nitrite. After washing with sodium carbonate solution, and cooling to 0° C., sp. gr. was 0.8843 and assay 107.6 per cent. During its distillation, the pale yellow liquid became full orange-yellow and abundant red fumes were given off. The vapor, at first deep orange, became, as distillation advanced, very pale, appearing colorless in depth of 150 Mm. and very pale orange in 1,250 Mm. The 90-100° C. fraction weighed 465 Gm. or 75 per cent of the crude = 87 per cent of alcohol used in preparing it. Washed with an equal volume of sodium carbonate solution in three portions and cooled to 0° C. for 12 hours, not more than 2 C.c. of water separated. The product had a pale yellow color; a purely ethereal, not pungent nor nitrous odor, assayed 101.2 per cent amyl nitrite and had sp. gr. 0.8818. Both assay value and sp. gr. showing the presence of nitrites of lower molecular weight, a quantity of the ether was next examined by fractional distillation, using 414 Gm.

| | Fraction number. | Temperature. | Per cent Weight. | Per cent Total Nitrites as $C_5H_{11}NO_2$. | Specific Gravity at 15° C. | Color. | Color of Vapor. |
|---|---|---|---|---|---|---|---|
| Product of | 1 | 80° C. to 9°0 C. | 11 11 | | | | |
| Nitrous Acid Conversion | 2 | 90° C. to 92° C. | 8.87 | 102.66 | 0.8898 | Pale yellow. | Very pale orange. |
| Process of Williams & Smith | 3 | 92° C. to 94° C. | 8.77 | 100 81 | 0.8830 | Pale yellow. | Very pale orange. |
| Pale yellow neutral | 4 | 94° C. to 95.5° C. | 20.92 | 100.14 | 0.8898 | Pale yellow. | Very pale orange. |
| Sp. gr. 0 8818 Assay 101.12% | 5 | 95 5° C. to 96° C. | 45.00 | 100.01 | 0.88135 | Pale yellow. | Very pale orange. |
| $C_5H_{11}NO_2$ Distillate between | 6 | 96° C. to 97 C. | 1.86 | 98.8 | | Pale yellow. | Very pale orange. |
| 90° C. & 100° C. = 84.4% Loss = 2% | 7 | Above 97° C. Residue. | 2.46 | 59.4 | | Slightly brownish yellow. | |

Fraction 1 was lost at once by breakage, hence its properties could not be determined, but in the following ones sp. gr. remained nearly constant until No. 5 gave 0.00135. Assay values, however, fell gradually until No. 5 was as near 100 per cent as the assay method would indicate.

These results show that the product of the manufacturing process consists of little other than nitrites. They show, also, that other nitrites than amyl are present, indicating that an impure alcohol had been used. The remaining portion of the supply was then fractioned, when, as was expected, the liquid proved to be very complex. 312 Gm. gave 8 per cent between 90° C. and 105° C.

sp. gr. 0.851; 32.5 per cent between 113° C. and 127° C., sp. gr. 0.8134; and 52 per cent between 127° and 129° C., sp. gr. 0.8154, leaving a residue of 7.3 per cent, sp. gr. 0.817, which probably would have distilled under 133° C.

These fractions distilling between 90° C. and 127° C. account, in great part, for the low boiling fractions in the crude amyl nitrite. The results would indicate that by process recommended pure amyl alcohol of constant boiling point will yield a nearly pure amyl nitrite, also of constant boiling point, and that that temperature is 96° C., the sp. gr. being about 0.8813–0.8814. Owing to lack of sufficient material, this supposition cannot be verified or disproved at present, but may form the subject of a note on a future occasion.

In view of the facts brought to sight, it would seem that the pharmacopœia recognizes an ether very far from pure, and much below the quality of at least one domestic brand. The statement of the pharmacopœia, "When freely exposed to the air, it leaves a large residue of amyl alcohol," does not apply to specimens from this source, nor to that prepared for this paper, the former leaving, at end of five hours, but a small residue from 10 C.c. placed in a watch glass, and the latter scarcely more than an oily film. Specific gravity is low, allowing a large admixture of amyl alcohol, and the limit of acidity much above the commercial specimen referred to, and perhaps still farther above what is easily possible.

Considering the great ease with which the substance can be prepared, excluding amyl alcohol entirely and including other amyl ethers in traces only, it would appear possible to adopt a quantitative test requiring a very pure ether, if not nearly absolute. This, with a lower limit of acidity and higher specific gravity and a close definition of method of taking the boiling point, would describe and require a much better article, and these requirements might readily be met by manufacturers of the commercial ether.

CINCINNATI, June 30th, 1887.

## The Medicines of Medicine.*

BY EMLEN PAINTER, PH.G.

THIS article was written with the intention of contributing it to a medical journal, but I have since decided to first bring the matter before the pharmacists of the country, and I now have the honor to present the paper to this representative body.

The object of the article is to throw some light, if possible, upon one of the most important adjuncts to the healing-art—the medicines prescribed by the doctors of medicine—not to abuse, however, in any degree, the confidence of the medical practitioner reposed in the pharmacist, nor to criticise the prescriptions of any physician.

I desire only to review the subject from a professional and scientific standpoint, to advance a progressive theory, and to point out, if possible, the quagmires yawning in every direction to entrap the unwary. For obvious reasons, the pharmacist has a superior point of observation from which to view this subject, otherwise I would hesitate to put forward my views and criticisms on a matter so important to medicine.

From a review of prescriptions of leading medical men in different localities for a period of twenty years and more, it is an observable fact that in proportion as scientific research has brought forward the different distinct principles of drugs employed in medicine, so have their separate principles grown more in use, and the drug itself, and galenical preparations of the crude drug, are less and less prescribed. It does not require a prophet to foretell that it is but a question of time when the separate and definite principles only will be employed, and that the inert, objectionable, vague, and varying substances will be discarded. It is also my conviction that eventually, through developments in scientific research, all remedial agents (other than food products) will be presented in their simplest form, and that preparations of crude drugs and mixtures, as primary articles of medicine, will become obsolete. I look upon any obstacle in the way of development in this direction as a serious drawback to medical and pharmaceutical knowledge, and a still greater detriment to suffering humanity.

As evolution proceeds in this course, the more learned and skilful of the medical fraternity will make their selection from the simples to suit the individual case under treatment, like the true marksman who singles out his game and with unerring aim brings it down. There will then follow all grades, down to the medical man who prescribes by culling over old prescriptions; or, if the ready-made prescriptions which now flood the market are not then extinct, he may prescribe one of these (concocted possibly by a wholesale drug firm or a grocer), as, with an old-fashioned blunderbuss, he fires at the flock.

In this evolution above referred to, the pharmacist must also take an active part; those in the vanguard, with the aid of the chemist, will devote themselves assiduously to separating the chaff from the grain; they will provide the means to enable the prescriber to make his selection of simples for whatsoever form of administration desired. And from this class of pharmacists, as of the physicians, all grades will be found down to the dispenser who will send away a legitimate prescription because of his lack of knowledge, or facilities for dispensing it, and who would be willing to content himself with handing out, or counting out, factory-made prescriptions, or the selling of other cure-all nostrums.

Although this great work of resolving remedial agents into their separate principles possessing distinct or different physiological properties goes on, and untold advantages to medicine and pharmacy are accruing from it, yet the benefits are lessened and the work seriously retarded, medicine and pharmacy are demoralized and besides saddled with a stupendous burden by the manipulators of these remedies, who force their mixtures upon us as primary medicinal agents.

The magnitude of this abuse, the absurdity of it, and its demoralizing effect can perhaps better be shown by first reciting a few brief statistics.

There are in the United States not less than 160 different so-called "manufacturers of pharmaceutical preparations," who in reality, for the most part, are but mere manipulators and mixers of drugs. At least 25 per cent of this number have offices in New York, and a still larger percentage send out their drummers to the medical men in this vicinity to distribute samples, to extol their wares, and to urge upon the physicians to designate their particular "make" in prescribing.

These 40 odd manufacturers include in their lists of preparations not less than the total sum of 36,500 mixtures, each of which is designated by some particular name, and so prescribed.

The dispenser is expected to be prepared to furnish any one of this list of proprietary articles at a moment's notice, and assuming that on the average five new ones are called for every day, it would take him just twenty years to have handled the whole stock, by which time some of it certainly would have gotten a little bit stale.

How absurd to expect the pharmacist to be burdened with this immense quantity of useless truck, or to expect the physician to tax his mind with the consideration of it. Yet there is not a single day in this great city but that hundreds and hundreds of these articles are prescribed and dispensed. I find, upon examining prescription files of recent date, that a large percentage of the prescriptions are for proprietary articles. If it were not for scientific research, which still goes on, notwithstanding this hindrance; if it were not for the new discoveries and the new lights which occasionally flash out even in the midst of all this débris, it would seem that we were drifting back to an infinitely worse state of empiricism than prevailed in the mediæval ages.

Let us now review a few of these factory-made prescriptions, making the selection from those which are most frequently prescribed by professional men, and therefore presumably the best of the whole list.

Of the pills (comprising the greatest number of mixtures) the following prescription is one very frequently seen:

℞
Pil. aloin, strych. et belladon. comp.
(W. H. S. & Co.'s) No. xxiv.
Sig. One or two a day.

Formula.
Aloin gr. 1/5
Strych gr. 1/60
Ext. bellad. gr. 1/8
Ext. casc. sag. gr. 1/2

or the name within the bracket may be written P. D. & Co., McK. & R., W. R. W. & Co., B. & C., W. & H., H. T. & Co., T. & Co., H. B. & W., W. & B., M. & Co., S. & D., or other makers innumerable. These pills are offered dressed up in various coats, and in various forms. Now, what is there in this formula that the pharmacist and dispenser cannot prepare it? What is there in it that bushels of these pills are required to be kept on the shelves of the pharmacist, in the warehouses, and in the wholesale drug houses, getting old and dry and hard, and otherwise unfit for dispensing? What is there in it that manufacturers by the score should claim a proprietary right therein, insomuch as to claim that those of their particular make are not only equal to the best, but are superior to all others? And many of these manufacturers further add insult to injury by cautioning the prescriber to look out for substitutions by the unprincipled druggist, to examine the coating or the shape of the pills dispensed and catch the rascal in the act who would dare compound the prescription himself, or to put up Brown's make when Green's make was ordered.

The thousand and one other formulæ for pills are open to the same criticism, others, indeed, standing in a worse light, and savoring still more of the clap-trap nostrum business, being known and prescribed as a specific for some ailment, as, for instance, W.'s Antisyphilitic Pills, T.'s Antidyspeptic Pills, M.'s Rheumatic Pills, etc., etc.

Of the elixirs, wines, and syrups, a single one will serve as an illustration, as they all come in the same category:

℞ Elix. Ferri, Quin. et Strych. Phos. (..........) ℥ iv.
Sig. One teaspoonful three times a day.

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* Read before the American Pharmaceutical Association.

This elixir is probably the one (of the multitude) most frequently prescribed, and there being no recognized strength or formula for this preparation known to the manufacturers, each produces an article peculiar to himself. These elixirs vary in alkaloidal strength, and have a still greater variation in the iron compound. The most popular one, perhaps, although purporting to be an elixir of phosphates, has been proven to contain no phosphate at all, and to be also deficient in the alkaloids claimed to be contained in it. A solution of citrate of iron and quinine in simple elixir, with a solution of strychnine added, will make a preparation so near like the one referred to that it is doubtful if an analyst even could determine a difference. This latter combination makes an elegant and stable preparation, and no doubt one of therapeutic value, but would not the prescriber be better served by ordering the quantity of cit. iron and quinine and strychnine desired, to be dissolved in a given quantity of simple elixir? The iron phosphates in solution are very prone to change, especially on exposure to the light. If the physician, however, desires a phosphate of iron with this combination of alkaloids, of standard and definite strength, I would respectfully refer him to the N. Y. and B. Formulary for this as well as for other kindred preparations.

I do not mean to imply, however, that all of these factory-made preparations are not true to name or to formula, but I do say that very many of them are not, and that the physician who prescribes them is in some degree groping in the dark.

There is still another class of articles approaching more closely even to the secret remedies which are so justly tabooed by the medical profession, and yet these articles are prescribed throughout the length and breadth of our land, although they are more insidious and damaging in their character than the worst of the other nostrums. The authors of these preparations not only claim proprietorship in them, but also in their very names, and, notwithstanding this, men of science will prescribe them who would be shocked at the thought of prescribing "Bear's Cough Syrup" or Bonnet's Sarsaparilla. If they would but give this class of articles a second thought, they could not fail to see how unprofessional they are, and how serious a clog to scientific advancement.

The names of these articles, as in the other instances, are legion; they generally include the name of their promoters or some fictitious name selected, or else their authors coin new names for old articles, and lay claim to the whole business as exclusively their property and as primary articles of medicine.

As an example of this class, take "Bromidia," which is daily prescribed by medical men, and used largely by the laity as well. In the advertisements of this article, I observe the formula is given. "Every fluid drachm contains 15 grains each of pure chloral hydrat. and purified brom. pot., and ⅛ grain each of gen. imp. ext. cannabis ind. and hyoscyam."

"Dose, ½ to 1 fluid drachm in water or syrup every hour until sleep is produced."

The "indications" given are almost as numerous as will be found on the yellow wrappers of the cure-all remedies so liberally advertised in the daily papers, and the only real difference is, this article is advertised for the eye of the medical profession, the other to the general public; they both point out the symptoms of ailments they are intended to relieve or cure, and they are equally unprofessional. I know it is claimed for this article that it is not a secret preparation. The proprietors give away the formula and retain for themselves nothing but the hollow name, upon which they spend thousands upon thousands of dollars in advertising it: how magnanimously generous! I presume, it is to repay them for such generosity that medical men prescribe "Bromidia" and like articles. If the preparation be true to the formula given, what other excuse can physicians have for prescribing a proprietary article? If the indications be such that the prescriber desires his patient to take 15 grains of pure chloral hydrate, 15 grains of purified bromide of potassium, and ⅛ grain each of genuine imported extract of cannabis indica and hyoscyamus, why does he not write his prescription for it instead of prescribing a "patent medicine"? One may answer that he cannot carry the formula in his head, that this combination has had a satisfactory effect, and he desires to use it again. Well, then, I would respectfully suggest that he write for elix. chloral comp., after the formula for "Bromidia," and have it so dispensed.

If, on the other hand, the article is not true to formula given, then it is a deception and a fraud, and should on this score be obliterated from the vocabulary of medicines, as well as all others of its ilk. In this connection, I would point out the important fact that the medicinal properties of "genuine imported extract of cannabis indica" reside in a volatile oil and green resin, which are not held in solution in a liquid no stronger in spirits than "bromidia," and the presence of 20 per cent of salt further interferes with solution; and, moreover, if it were in solution or even suspended, the preparation would have a greenish tint.

This article was not singled out for any particular reason, further than that, under my observation, among the preparations of this class, it led in the frequency of prescriptions for it. There are scores of other like preparations which might just as well have been selected.

To conclude, I contend that the whole of these 36,500 proprietary articles above referred to are totally unworthy the distinction of being prescribed by medical gentlemen; that they are directly at variance with scientific progress; that their promoters have contributed absolutely nothing of value; and that, had they never existed, both medicine and pharmacy would have this day reached a higher plane in the development of science.

These so-called manufacturers of pharmaceutical preparations have simply gathered together a lot of old prescriptions of different physicians, and these, with the mixing together of sundry principles, which their peers have eliminated, constitute their whole stock in trade. In this long list of preparations, they have originated nothing, except their grand scheme of appropriating the work of others, perverting its application, and, by a system of advertising, saddling it upon medicine and pharmacy, which bear the burden, and these schemers enjoy the pecuniary benefits. The load is becoming more and more burdensome, and I feel that we have submitted to the imposition long enough, and that we should rise up and drive the enemy from their strongholds, which can readily be done by concerted action.

Theirs is a garrison whose commissary stores are in the hands of their natural enemy. Cut off their supplies and they will very quickly "seek other fields and pastures new."

NEW YORK, June, 1886.

## Irish Moss Gelatin.*

BY EMLEN PAINTER, NEW YORK.

As a member of the National Formulary Committee, it fell to my lot to investigate the emulsions, and in pursuance of this duty, I made samples after all the different formulæ for emulsions that had come before us.

A mucilage of Irish moss appeared to the committee to be the most satisfactory emulsifier for fixed oils. Although it did not so minutely divide the particles of oil as some other agents, it made a more uniform and permanent emulsion in the hands of different manipulators than any other agent tried, and it was finally adopted by a unanimous vote of those present.

The chairman of the committee suggested that it would be very desirable if this mucilage could be preserved or more readily prepared than by the somewhat tedious and roundabout method in use. To this end I made a few experiments. Alcohol being satisfactorily employed to preserve the emulsion, it occurred to me that the mucilage might possibly be preserved indefinitely in the same way and thus kept ready for use whenever desired. Upon trial, however, I discovered that when the quantity of alcohol used in the formula for emulsions was added to the mucilage first, the emulsifying property of the mucilage was very materially lessened—and in fact, it was rendered totally unfit for the purpose.

I next took a quantity of mucilage of Irish moss, as prepared for making the emulsion, and evaporated it in a water bath to a thick syrupy or semi-fluid consistence and with a small brush spread it upon plates of glass to dry. In the absence of a drying closet, these plates of glass were placed over gas stoves, elevated a foot or more above the flame, and with a sheet of wire gauze intervening. In a short period of time the mucilage or rather gelatin—as it may more appropriately be named in its changed form—became hard and dry and began to peel off of the plates in the hottest places, in thin wafer-like scales, as shown in the samples here before you.

The yield of gelatin from the Irish moss used (which, however, was not completely exhausted by my mode of manipulation) I found to be about 70 per cent. In the mucilage for emulsions, made in the same way, 60 grains of moss was used in making five ounces of mucilage, this quantity being required to make one pint of a 50 per cent emulsion of oil. Therefore, 40 grains of the Irish moss gelatin practically represents the quantity required to make a pint of emulsion of oil.

Whilst this gelatin is but slowly and sparingly soluble in cold water, it dissolves completely in boiling water, and a mucilage may in this way be prepared in a comparatively short time.

The following formula was proposed for

### *Emulsion of Cod Liver Oil.*

| | |
|---|---|
| Irish Moss Gelatin | 40 grains |
| Boiling Water | 5 fl. ounces |
| Cod-Liver Oil | 8 " " |
| Syrup Tolu | 2 " " |
| Alcohol | 1 " ounce |
| Oil Sassafras | 10 minims |
| Oil Wintergreen | 10 " |
| Oil Bitter Almond | 2 " |

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* Paper read at the Annual Meeting of the Amer. Pharm. Assoc. in Cincinnati.

Dissolve the gelatin in the boiling water, taking pains to have it completely in solution, transfer the mucilage formed to a pint bottle, gradually add the oil in divided portions, and shake the bottle vigorously after each addition and until a perfect emulsion is formed, then incorporate the syrup, and lastly add the alcohol in which the essential oils have previously been dissolved, and shake well together.

If preferred, this emulsion may also be made in a mortar in the usual way, and it is probably better to let the mucilage become perfectly cold before proceeding further with the emulsion. A sample made after the above formula is here presented.

Irish moss gelatin may be readily prepared in a small way by the following method:

Take of good bleached Irish moss a convenient quantity, wash it well with cold water, and place it in a boiling-water bath, with about fifty times as much hot water, stir frequently, and continue the heat for about fifteen minutes, then transfer the mixture to a strong muslin strainer of open texture, and with moderate pressure strain off the mucilaginous liquid. To obtain a larger yield, the undissolved portion may be returned to the water-bath and treated a second time with about one-third the quantity of water and strained as above. The strained liquid is then evaporated in the water-bath to a proper consistence in the manner before described, and spread upon plates of glass to dry.

The gelatin prepared as above is designed only for emulsions or other opaque mixtures. Irish moss mucilage, however, is admirably adapted for other pharmaceutical uses.*

If a perfectly clear mucilage is desired, the solution of Irish moss must be filtered through paper before evaporation. This may be readily accomplished by first diluting the mucilaginous liquid before described with two or three times its volume of water; the filtration will be greatly accelerated also by loosely filling the plaited paper filter with absorbent cotton before pouring in the liquid.

Some further experiments were made with the view of producing Irish moss gelatin by a process adapted to a more extended scale of operation, entailing less labor, and with the endeavor to furnish an article suitable for any purpose for which the gelatin is useful. I made use of a percolator which I had previously constructed for making syrup of coffee. It consists of a cylindrical metallic percolator, 18 inches high, tapering slightly, and from 4 to 6 inches in diameter. This percolator is surrounded by a water-jacket. The lower extremity of the percolator terminates in a tube ⅜ inch in diameter, which is bent at right angles and passes through the side of the water jacket, the tube terminating in a ⅜ inch bib. I had made of "cheese cloth" a long conical-shaped bag of about one-half the capacity of the percolator. This bag was filled with selected Irish moss (holding ¼ pound), which had been previously washed in cold water, then suspended in the percolator, the water-jacket and percolator both filled with water, and the apparatus placed over the fire. After being kept at the boiling temperature for about two hours the bib was opened and a perfectly clear mucilaginous liquid drawn off, which upon evaporation and spreading upon plates of glass, as before described, yielded a beautiful transparent gelatin. This gelatin, when dissolved in hot water, makes a perfectly clean mucilage, which I have the pleasure to here exhibit.

The Irish moss will not be nearly exhausted by this one operation, but the percolator can be repeatedly filled, heated and drawn off as before, until nearly all the soluble portion is obtained.

The water-bath is not absolutely necessary in making the mucilage in this way, although I found it to make a nicer product than without it, using this same strainer cloth; if a thicker strainer was used it would possibly make as clear a solution without as with the water-bath.

For convenience and a saving of much labor, the mucilage may be drawn directly into shallow trays, and these placed in a well-heated drying closet, or by other suitable means evaporated to dryness. Thicker sheets of gelatin are obtained by this method, which answer every practical purpose; a little longer time only is needed to dissolve them.

NEW YORK, August, 1887.

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**Melinit.** The great bug-bear of the warfare of the future, the new explosive *melinit*, which consists, chiefly, of a mixture of ether and picric acid, has already reached the end of its notoriety. It has been conclusively ascertained that the mixture gradually loses its explosive properties, by reason of a setting free of nitrogen or of nitrous acid. The stock accumulated in France, which has cost the snug little sum of fifty millions of francs, is being destroyed by order of the government. It seems that the people who profited most by the experiment were the German manufacturers of the ether and of carbolic and picric acids.

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## The Percentage of Ethyl Nitrite in the Washed Nitrous Ether of the Pharmacopœial Process for Spirit of Nitrous Ether.*

BY W. SIMONSON, OF CINCINNATI.

THE pharmacopœia directs that its spirit of nitrous ether shall contain 5 per cent of the crude ether obtained by its process, and shall show by an assay method given, at least 4 per cent of absolute ethyl nitrite. In other words, it states that this impure ether contains at least 80 per cent of pure nitrite.

It has been shown by Parsons that this washed ether contains ethyl acetate as well as nitrite. The proportions, theoretically, are 63 per cent ethyl nitrite, and 37 per cent ethyl acetate, and he states (NEW REM., Sept., 1883, p. 259) that "careful quantitative experiments give results quite closely in accord with this supposition."

In a paper read before the Ohio Pharm. Assoc. meeting at Springfield, 1886, this operator showed that the commercial concentrated nitrous ether, except one make of 90 per cent (certainly not U. S. P.), and one which was so poor as to be worthless even when considered as a spirit, varied between 59 per cent and 28 per cent total nitrites stated as ethyl nitrite. These varying results, facing the statement of Parsons that the process yields a product of quite constant composition, and failure after some search to find any published statements on the percentage of nitrite in the washed ether, have prompted the present work. The difference between the product required by the pharmacopœia and that obtained by its process is becoming generally well known, and has proven a source of trouble between manufacturers and those consumers who aim to maintain the officinal standard. Hence it is very desirable that the error should be corrected at the next revision. With the purpose of supplying data for such change, application was made to all makers of the concentrated nitrous ether, whose product seemed to be made by the U. S. P. method. One replied, refusing to furnish material under any condition, and from others no answer was obtained, except one who was interested in the subject. From this one manufacturer, and from another, who makes and sells the spirit but not the ether, supplies were finally obtained. The latter furnished the first 25 in the following table:

| Number. | Per cent nitrites as $C_2H_5NO_2$ | Per cent nitrites in re-washed ether. | Loss by re-washing. | | Per cent total acids as $HNO_2$. | Number. | Per cent nitrites as $C_2H_5NO_2$ | Per cent nitrites in re-washed ether. | Loss by re-washing. | | Per cent total acids as $HNO_2$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Volume. | Weight of $C_2H_5NO_2$ | | | | | Volume. | Weight of $C_2H_5NO_2$ | |
| 1.... | 28.8 | 43.9 | 36% | 2.5% | .... | 21.... | 45.8 | 69.7 | 39% | 7.5% | .... |
| 2.... | 30.8 | 57.5 | 50 | 7.0 | .... | 22.... | 23.0 | 33.4 | 33 | 2.5 | ... |
| 3.... | 30.2 | 39 9 | 28 | 5.0 | .... | 23.... | 33.0 | 61.0 | 40 | 3.5 | .... |
| 4.... | 39.3 | 45.2 | 22 | 10.0 | .... | 24.... | 34.8 | 57.9 | 43 | 5.0 | .... |
| 5.... | 45.8 | 67.1 | 34 | 3.2 | .... | 25.... | 32.0 | 43.4 | 38 | 3.5 | .... |
| 6.... | 38.7 | 51.0 | 29 | 7.0 | .... | 26.... | 37.2 | 63.1 | 47 | 9.0 | 1.95 |
| 7... | 41.0 | 67.8 | 43 | 6.0 | .... | 27... | 21.75 | 39.6 | 52 | 12.5 | 4 3 |
| 8.... | 42 8 | 68.1 | 40 | 5.0 | .... | 28.... | 33.90 | 63.7 | 52.5 | 2.0 | 2 1 |
| 9.... | 59.4 | 71.4 | 21 | 5.0 | .... | 29.... | 18.55 | 33.5 | 54.5 | 17.0 | 4.3 |
| 10.... | 40 8 | 56 5 | 30 | 3.0 | .... | 30.. . | 21.0 | 38.6 | 52 | 11.5 | 4.6 |
| 11 ... | 44.6 | 69 4 | 36 | 1.0 | .... | 31.... | 22 6 | 38.5 | 54 | 21.5 | 4.1 |
| 12.... | 50.4 | 58.0 | 17 | 4 0 | .... | 32.... | 37.9 | 64.5 | 46 | 3.0 | 2.0 |
| 13.... | 52.4 | 70.0 | 28 | 4 0 | .... | 33.... | 35.9 | 64.3 | 45 | 2.0 | 1 9 |
| 14.... | 38.9 | 53.6 | 29 | 3.0 | .... | 34.... | 35.2 | 60.6 | 49 | 11.5 | 2.0 |
| 15.... | 48.5 | 67.8 | 30 | 2.5 | .... | 35.... | 20.7 | 37.4 | 52 | 13.5 | 6 4 |
| 16.... | 61.1 | 77.0 | 23 | 3.0 | .... | 36.... | 18 8 | 35.7 | 54 | 17.0 | 4.1 |
| 17.... | 43.0 | 68.0 | 37 | 2.0 | .... | 37.... | 33.55 | 61.8 | 47 | 2.0 | 1.9 |
| 18... | 45 3 | 63.3 | 32 | 4.0 | .... | 38.... | 21 7 | 38.8 | 53 | 16.0 | 4.3 |
| 19.... | 43.3 | 55 8 | 25 | 4.0 | ... | 39.... | 37.75 | 64.1 | 46 | 7.5 | 1.9 |
| 20... | 41.8 | 52.6 | 22 | 2.0 | .... | 40.... | 32.55 | 61.0 | 47 | 2.0 | 1.9 |

All these were assayed while but recently made and nearly free from acid. The last 15 were prepared in October, 1886, and examined August 15th following. These samples were the washed distillate after dilution with an equal weight of alcohol, so that the figures for percentage strength must be doubled. At the request of the maker, the total acids in these were estimated and stated as nitrous acid, $HNO_2$. As specimens were preserved by an equal quantity of alcohol, they were in much better quality than the undiluted ether at the same age, though containing an average of 3.2 per cent acids, as nitrous acid.

The method of assay for nitrites is that of Allen, measurement of NO evolved from a mixture of a known quantity of the ether to be tested with a strong solution of potassium iodide and a dilute acid. The correction for solubility is 0.3 C.c. NO for each 10 C.c. of liquid in the nitrometer tube.

The percentage of total acids, in terms of nitrous acid, were found by titrating very rapidly with deci-normal alkali from 1 to 2 grammes in about 30.0 C.c. alcohol. The quantities stated in the table are the lowest that could be obtained in three estimations of each specimen, the experimental error rarely exceeding 0.1 per cent. The operation is attended with some difficulty. Using a 5 per cent dilution and deci-normal alkali, with phenolphthalein as indicator, a point is soon reached, alkali being added rapidly, when the liquid is fairly pink throughout, very quickly fading. A further small addition of alkali renews the color, now fading more slowly, to be reformed by a still smaller quantity of alkali, and these reactions may be kept up for some time, the end reaction vanishing.

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* See paper read before Phar. Society of G. B. by Peter Boa.—Phar. Jour. and Trans., May 21st, 1887. AMER. DRUGG., July, 1887, p. 122.

* Paper read at the Annual Meeting of the Amer. Pharm. Assoc. at Cincinnati.

The color also fades—that is, alkali is consumed—even if in large excess, in absence of air, though more rapidly if exposed, doubtless through saponifying of ethyl nitrite as well as formation of more free acid. In making assays, as alkali may be consumed through these two causes, thus increasing unjustly the calculated amount of free acid, the end reaction has been taken as that point at which, alkali being added very rapidly, the pink color persists a moment after shaking. As the results have not been checked by any other method, they may be held as only approximate.

Of the first series, variation is from 23 to 61.1 per cent, or as 1 to 2.66 per cent, average being 41.6 per cent. The portion soluble in an equal quantity of water was from 17 to 50 per cent, but loss from re-washing was usually very small. Of the second, figures doubled on account of previous dilution of specimens, it is from 37.1 to 75.8 per cent, or as 1 to 2.04 per cent. The portion soluble in water is mostly alcohol, causing, with some exceptions, a large loss of ethyl nitrite by re-washing.

These are the variations found in a year's production in one factory and in a month's in another. They are believed to cover variations that might be found in a much larger number of specimens and from more sources. If the proportion of ethyl nitrite is the chief indication of medicinal value, these variations are too great and form a subject for due consideration. Either the process must be modified in some of its details, or final dilution be based on assay of the washed ether. Did the value of the spirit depend solely on ethyl nitrite, then the method might well be replaced by that detailed by Professor Painter at last year's meeting. This operator has had no experience with this process in making this ether, but has repeatedly obtained a nearly pure nitrite in converting amyl alcohol.

## Fluid Extract of Licorice Root.*

BY G. W. KENNEDY, POTTSVILLE.

QUERY No. 11.—What is the best and most permanent menstruum for fluid extract licorice (root)?

In order to arrive at a satisfactory conclusion in framing or constructing a formula for a fluid extract of this drug, it is absolutely necessary to take into consideration the principal constituents of the root, and their best solvents, and when you are in possession of this knowledge there should be no trouble experienced in preparing a fluid extract containing the essential principles of the drug, and one which should remain unchanged, holding permanently the desirable constituents in solution. There is nothing more unsightly in the shop of a pharmacist than a bottle containing some galenical preparation of which probably one-eighth is a precipitate, deposited most likely owing to the unskilful and unscientific manner in which the preparation was made. Not only is the appearance objectionable, but who knows but this precipitate matter may contain the very substance which should be held in solution, and which should be given in divided doses, as dispensed in compounding the prescriptions of physicians, and not all in a few doses which would probably be the case if the deposit was dispensed from the last few ounces in the bottle.

I find in taking a retrospective view of the pharmaceutical literature of this old and useful drug, licorice, that considerable has been written in regard to its properties, and the best means of preparing the various preparations of it. In the effort to render the medicines palatable in these days of pharmaceutical elegance, this root is very largely used for masking the taste of bitter drugs, such as quinine and other nauseous remedies. Although a very ancient drug, it seems to have been entirely overlooked for a long time. This peculiar property which it possesses is due to the sweet principle, glycyrrhizin, which acts on the gustatory nerves, and deadens their sensibility.

Robiquet (in 1809) obtained from the licorice root, starch, asparagin, albumin, a resinous oily matter, to which the slight acrid taste of the root is due, and glycyrrhizin, a peculiar sweet principle, which can be obtained by precipitation from a strong decoction upon the addition of an acid or a solution of bitartrate of potassium. The same investigator also found it to contain malic acid. The starch in the root can very readily be seen by the use of a microscope or by testing a decoction with iodine, when the characteristic blue color is produced.

In 1875, Roussin found the sweet principle to be present in the root in combination with ammonia as glycyrrhizate of ammonium, which he obtained pure from the cold infusion by precipitating with sulphuric acid. It is then purified by washing with water, dissolving in strong alcohol, and adding ether, when a blackish mass is thrown down. The clear liquid is then carefully mixed with small quantities of alcoholic solution of ammonia. The precipitate is yellowish, very light, and by evaporating its aqueous solution, is obtained in brittle, translucent, shining scales.

The "Pharmacographia" says: "When glycyrrhizin is prepared from a decoction of the root, by precipitation with a solution of cream of tartar, or basic acetate of lead, then washed with diluted alcohol, and dried, it is an amorphous, yellow powder, possessing a strong bitter-sweet taste, and an acid reaction. It forms with hot water a solution which gelatinizes on cooling, does not reduce alkaline tartrate of copper, is not fermentable, and does not rotate the plane of polarization.

In 1851, Gorup-Besanez found glyzyrrhizin prepared in a similar manner to that of Roussin to have the composition $C_{24}H_{36}O_9$, to be soluble in hot water, alcohol, and ether, and on boiling with dilute acids to be split into glucose, and a bitter resinous substance named glyzyrretin, which is insoluble in water, but dissolves in alcohol and alkalies. By fusing it with potassa, Weselsky and Benedikt (1876) obtained paraoxybenzoic acid, $C_7H_6O_3$.

The above embraces the principal literature bearing upon the pharmacy of the drug. You have, no doubt, noticed that the alkalies readily dissolve glycyrrhizin, the principal substance to be obtained in making the galenical preparations of the root. Pharmacists, therefore, should not lose sight of this important point, and formulate a good working menstruum accordingly.

I have found after several trials of mixtures of alcohol and water, or alcohol, glycerin, and water in various proportions, that the results obtained in the completed extracts were not altogether satisfactory. A 12-per-cent alcoholic menstruum will not keep the finished product. I have noticed fermentation to set in after standing two or three months during summer, which caused precipitation; the precipitate, upon examination, was found to be principally glycyrrhizin. But by the addition of the ammonia to the menstruum, very good results were obtained. Certainly a decided improvement over the old formula of the Pharmacopœia of 1870, which does not contain any alkali. I have found that the preparation contained a much larger amount of the sweet principle; besides, no precipitation of the finished product was observed to any extent six months after being manufactured. The sweetness of the extract being so much stronger, the slightly acrid taste of the root is scarcely perceptible, thus making it more desirable as a flavoring ingredient in cough remedies, and concealing the taste of bitter medicines, for which purpose it is frequently prescribed by physicians. The formula for the fluid extract of the Pharmacopœia of 1880 is very good, with the exception that too much water of ammonia is used. There is one and a half ounces in each pint, and in all my experience and observation I have found one ounce sufficient. At least, very excellent and satisfactory results were obtained, and this was only determined after repeated experiments were made with a view of finding out the smallest amount of ammonia it was necessary to use. I also recommend the addition of glycerin to the menstruum, as the finished product is much handsomer and continues to remain so. By the improved, formula which the writer herewith furnishes, if the material operated upon is good, and the process carefully managed in every particular, a perfectly reliable and stable fluid extract can be made.

### EXTRACTUM GLYCYRRHIZÆ FLUIDUM.

(Fluid Extract of Licorice Root.)

Take of Licorice Root in moderately fine powder, 16 troy ounces; Glycerin, 3 fluidounces; Alcohol, Water, Water of Ammonia, sp. gr. 0.960, of each, a sufficient quantity.

Mix 5 fluidounces of alcohol, 3 fluidounces of glycerin, 7 fluidounces of water, and 1 fluidounce of water of ammonia. Moisten the powdered drug with the menstruum, pack in a cylindrical percolator, cover the surface, and pour on the remaining portion of the menstruum, and when percolation commences, close the orifice with a cork, then cover the percolator to prevent evaporation, and set it in a moderately warm place for two days, after which the cork is removed and diluted alcohol poured upon the top and percolation continued. The first 12 fluidounces which are obtained are reserved, and percolation continued until 12 fluidounces more have passed, which are carefully evaporated to 4 fluidounces, when the two portions are mixed. After standing two or three days, it is filtered through paper.

## Ground Ointment Medicaments.

BY JOSEPH FEIL, PH.G., OF CLEVELAND, OHIO.

WHO, in the daily round of prescriptional duties, has not hoped, desired, and prayed for easier methods in making ointments?

We claim to be progressive, and yet we follow the same method of making unctuous preparations as were practised by Galen and, maybe, a thousand years before his time.

The innovation I propose has nothing startling about it, nor will it tend to increase expenses, in fact it should reduce them.

What we want is, ground ointment medicaments, so that we can almost instantly mix them with our ointment bases, save time, and have much handsomer-looking preparations.

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* Paper read at the annual meeting of the Amer. Pharm. Assoc. in Cincinnati.

We know the main difficulty in making this class of Galenicals lies in getting the medicament in a very fine state of division. This is a laborious and time-taking operation, and time—at least with some pharmacists—is money; now what I propose is, let the pharmacist get a small paint mill and proceed as mentioned further on, or induce our ever-willing-to-accommodate-us friends, the ubiquitous manufacturing chemists, to put on the market a line of ground ointment medicaments such as zinc oxide, lead carbonate, yellow and red mercuric oxide, ammoniated mercury, etc., ground in benzoinated cottonseed oil.

The value of this base for the purpose is, that less is required than if a more solid one is used, its practical tendency to rancidity or other form of decomposition is nil, and it requires only one-fifth the weight of the chemical to get it in proper condition for use; that is to say, for example, if it were desired to make five ounces of zinc oxide ointment, for the one ounce zinc oxide one and one-fifth ounces of the ground preparation would be required, and then sufficient of the required base to make five ounces.

These ground medicaments could be put on the market in collapsible tubes containing two or four ounces each, or half and one pound patent painters' cans; the cost of grinding would be small, and the saving to the pharmacist in time would be great. Besides, an ointment made from such ground chemical or drug would certainly be better and smoother than any the pharmacist could make from ordinary drugs used for this purpose as found in the open market.

## Liquor Gutta-Perchæ. Solution of Gutta-Percha. Traumaticin.*

BY J. M. GOOD, ST. LOUIS.

QUERY XIV.—What is the best means of clarifying liquid gutta-percha? A better one than the present officinal one is desired.

The officinal process for this preparation, as is well known by all who have tried it, is entirely unsatisfactory, and hence the demand of the query for a better one.

The limited use which it has had is, to a great extent, responsible for the perpetuation of the process, through a number of decades which has given such an indifferent result. Yet, in opposition to this, it may be stated that an inferior article would necessarily find little favor.

A good article used as a simple, external coating possesses merits not fully appreciated, but more recently it has come to be frequently prescribed as an excipient for chrysarobin, salicylic acid, and other substances used in the treatment of skin diseases.

The sample which I here present, and which is clear even to brilliancy, was prepared by myself, by a process which is neither new nor startling.

It is to take of gutta-percha, select and cut into shreds, 4 parts, chloroform, 96 parts. Put the chloroform into a wide-mouthed bottle, add the gutta-percha, and agitate frequently until dissolved. Then filter.

The first criticism on the officinal formula is that the amount of gutta-percha ordered is too great; the solution is so thick that the carbonate of lead is deposited slowly and with difficulty. If, eventually, a product is obtained which has some degree of transparency, it is too thick for satisfactory use. To clarify the liquid so that it may be rendered transparent is the next desideratum. This step is simplified somewhat by the first modification of the formula.

Filtration has heretofore been considered impracticable, and for even a quite dilute solution we must still regard the ordinary filter but poorly adapted, but, fortunately, Thomas Stewart, of Philadelphia, with his "patent textile filtering paper," comes to our relief, and furnishes us with a filter which answers every requirement of the case. The apparatus for filtering must be closed and adapted for volatile liquids. That known as the "Mohr & Redwood" device, and described in the different works on pharmacy, is simple and convenient.

A quick and easy way to prepare this solution is to dissolve the dentists' white, purified gutta-percha in chloroform, but the objection to this is the cost of the purified article, it being quoted at about $1 an ounce, while a good article of gutta-percha may be purchased for $2 a pound. A good article of traumaticin may be purchased for $2.75 per pound. The actual cost of it, prepared as I have shown you, is less than 75 cents a pound. A sample in my possession, purchased from a reliable firm, left, upon evaporation, 4 per cent of pure gutta-percha.

This is apparently the same strength as what I have prepared. It is in reality about ½ per cent stronger. The filter which I used was counterpoised, and on weighing the dried deposit on the filter, the gutta-percha, although the best that could be obtained in the form of chips, was found to contain 10 per cent of impurities. If 5 per cent instead of 4 be employed, the solution could still be readily filtered, I think. Decimal proportions, where they can appropriately be employed, are the most acceptable, but the actual strength of the officinal solution can be left for future experiment.

## Agents for Making Hydro-alcoholic or Aqueous Solutions of Volatile Oils, etc.*

BY DR. CHAS. O. CURTMAN, ST. LOUIS.

FOR the purpose of obtaining officinal solutions in water of a variety of essential oils, camphor, etc., various processes have been devised so as to secure not only a full saturation, but at the same time a perfectly clear and limpid product. In case of the aromatic waters, distillation gives certainly a very good result, superior in many instances to the solutions of previously distilled oils, but it is on the one hand somewhat troublesome and expensive, while on the other hand it does not always avoid turbidity, arising from too great an abundance of the aromatic oil. To obtain, in a short time and at trifling expense, an aromatic water of full strength and thoroughly clear, it was formerly the practice to mix the oil with magnesia (so as to divide it into very small particles, and thereby render it more readily soluble), and after addition of the water to filter it. The product thus prepared is certainly quite clear and well saturated, but objectionable from the presence of magnesia in solution, which renders the aromatic water less suitable as a solvent for silver nitrate, etc. In the last pharmacopœia, cotton is directed as absorbent and distributor of the substances to be dissolved, and it yields excellent results, so far as clearness and saturation are concerned, but complaints have been made that slimy flakes of fungoid growths are more likely to occur in waters prepared by this method. To obviate such a deterioration, Dr. Hoffmann has proposed the use of finely powdered talcum, while others have used precipitated calcium phosphate, and others again the silicious material composed principally of fossil diatoms, and known under the name of *kieselguhr*, or diatom earth, erroneously called infusorial earth. At the request of Mr. J. M. Good, of this city, who kindly supplied me with specimens of materials from various sources, I made a series of experiments as to their relative value, not only for the preparation of medicated waters, but also for the clarification of various fruit juices and elixirs in which vegetable acids, ammonium citrate, etc., are among the ingredients. It soon became evident that calcium phosphate is not very suitable for the latter purpose, as quite a quantity is dissolved by the vegetable acids. Even aqua cinnamomi, if prepared with its aid, while of beautiful, clear appearance, left on evaporation and ignition upon platinum foil, a considerable permanent residue.

Different specimens of talcum, procured from various sources after washing with dilute hydrochloric acid, according to Dr. Hoffman's directions, were unexceptionable for the preparation of aromatic waters. When treated, however, with tartaric or citric acid or ammonium citrate, iron passed into solution. To remove this more completely than by simple washing, 100 parts of talcum were boiled for a short time with a mixture of 100 parts of dilute hydrochloric acid, U. S. P., and 400 parts of distilled water. The turbid mixture was allowed to settle, the liquid decanted, and the residue again boiled for a few minutes with a like quantity of dilute hydrochloric acid, of about one-half the strength of the foregoing. After standing and decanting the acid, water was added to the residue and thoroughly shaken up with it, and the decantation repeated several times until a specimen of the water poured off did no longer give the Prussian-blue reaction for iron with potassium ferrocyanide. The moist talcum was then thrown upon a filter, and washed out with distilled water until the removal of all the hydrochloric acid was indicated by a failure of the filtrate to produce a cloudiness with silver nitrate.

Talcum thus prepared forms a most efficient and unexceptionable material, not only for the preparation of aromatic waters, but also for the clarification of various acid materials entering into the composition of elixirs, etc. Not the least trace of permanent residue can be found after filtration through it in solutions of vegetable acids or ammonium citrate.

The next experiments were made with silicious earth from two sources, the "kieselguhr," from Germany, and "diatom earth," from Virginia. Both of these contained large quantities of iron, the Virginia specimen more than double that of the German. They were purified in the same manner as the talcum, but required much longer boiling before being freed from iron. After purification, they were used for the preparation of aromatic waters. They yielded excellent results so far as clarification is concerned, but did not appear to absorb quite so much oil, so that the same quantity of oil requires about 10 per cent more of kieselguhr than of talcum, while the Virginia specimen proved even somewhat less absorbent than the

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* Paper read at the Annual Meeting of the Amer. Pharm. Assoc. at Cincinnati.

* Paper read at the Annual Meeting of the Amer. Pharm. Assoc. at Cincinnati.

German. Treated with organic acids and ammonium citrate, they yielded nothing to them.

On comparing the different materials experimented with, it is evident that thoroughly purified talcum stands at the head of the list. Next comes German kieselguhr, which fully equals talcum in its excellent results, but requires to be employed in somewhat larger quantity. Nearly equal to this stands the Richmond diatomaceous material, while calcium phosphate is not eligible. In the short time allowed for observation, no slimy flakes of fungoid growth were developed in any of the specimens.

ST. LOUIS, MO., August, 1887.

## Bismuth and Potassium Citrate.*

BY JOSEPH FEIL, PH.G., CLEVELAND, OHIO.

WHETHER soluble bismuth salts possess the therapeutic value of the insoluble salts or not, the fact is evident that such a soluble compound has been used for a sufficient length of time to prove at least by its continued and somewhat increased demand that it possesses some valuable and positive medicinal value.

The objections to the bismuth and ammonium citrate are its aptness to lose ammonia, and hence to be rendered somewhat insoluble, and the still greater one of requiring an excess of aqua ammoniæ to keep it in solution, and hence rendering medicinal substances requiring a neutral or acid solution, and usually combined with this remedy, inert, or throwing them out of solution altogether.

With the purpose of discovering some bismuth salt which shall be soluble in water, neutral to test paper, not precipitated by acid or alkali, and easy to be used with pepsin, pancreatin and alkaloids, I have instituted some two hundred experiments.

It would be soul-wearying to again go over the ground once traversed, although infinitely easier on paper than at the laboratory table, but it would also serve no purpose; the conclusion of the work is, however, I modestly may expect, of some value to chemistry and pharmacy.

I searched every available chemical work in two large libraries and I found no reference to such a bismuth salt as I desired to have. It was astonishing that recent standard chemical works, such as Roscoe and Schorlemmer and others, do not even mention bismuth and ammonium citrate.

After very many experimental failures, I finally found that bismuth citrate is soluble to a very appreciable extent in potassium citrate solution.

I can state that two parts bismuth citrate and five parts potassium citrate will make a clear solution with twenty parts water with the aid of a gentle heat. This solution will retain its clearness for several days, when a deposit of perhaps one-eighth of the mixed salts takes place, and the rest remains in solution definitely. When about one-third glycerin is used in place of so much water, only one-half the amount of deposit takes place, or one-sixteenth of the salts used. I have not yet definitely determined the nature of this precipitate. The solution shows, on testing, a considerable percentage of bismuth salt yet in solution, the deposit, however, shows a larger amount of bismuth salt than two-sevenths, the proportion used. The solution is not affected by the addition of ordinary acid, alkaline, or alkaloidal solutions.

The work required was so much greater than I anticipated that I could not complete my experiments.

The above salt was used in several cases by a Cleveland physician, and he found about the same action as from the pharmacopœial bismuth and ammonium citrate.

* * *

## Calomel Administered Subcutaneously.

THE administration of calomel by subcutaneous injecjection, in the treatment of syphilis, has been reported upon favorably by Dr. Krecke, who states that he has found this method the most certain in its results next to inunction (*Münch. Med. Wochenschr.*, No. 6, p. 93.) The calomel is simply suspended in water containing an equal weight of sodium chloride, ten per cent of each being usually used. Care should be taken to shake the bottle before using the mixture, and after the syringe has been filled it should be held with the needle downwards until the injection has been made. From one to two grains of calomel are injected deep in the gluteal region every five or six days. The treatment is also recommended by Dr. Carl Hopp (*Med. Rec.*, July, p. 305), who states that dépôts of calomel are formed at the point of injection from which the perchloride is gradually formed and diffused through the system.—*Pharm. Journ.*

**Colored pencils for writing upon the human skin are** made in three colors, black, blue and brown, by Johann Fröscheis, lead pencil manufacturer at Nuremberg. The object of these pencils is to serve for anatomical or clinical purposes, for instance, for marking the extent of the exudation in cases of pleurisy.

## Specimens from the National Formulary now in Course of Preparation.*

### EMULSIO OLEI MORRHUÆ.

### EMULSION OF COD-LIVER OIL.

### I. *Irish Moss Emulsion of Cod-Liver Oil.*

| | |
|---|---|
| Cod-Liver Oil | 8 fluidounces. |
| Mucilage of Irish Moss | 5 “ |
| Syrup of Tolu | 2 “ |
| Flavoring | a sufficient quantity. |
| Water | enough to make 16 fluidounces. |

Pour the Mucilage of Irish Moss into a suitable bottle, add the Cod-Liver Oil in divided portions, shaking well after each addition, and, when a perfect emulsion is formed, add the Syrup of Tolu, and Flavoring, and lastly, enough Water to make *sixteen* (16) *fluidounces*. Finally, shake the whole thoroughly together.

This emulsion may also be prepared by mixing the Mucilage of Irish Moss with the Oil and other ingredients in a mortar, or, when larger quantities are to be prepared, it may be mixed by some mechanical contrivance.

When Emulsion of Cod-Liver Oil is to be kept for some time, its deterioration may be retarded by the addition of *one* (1) *fluidounce* of Alcohol in place of the same quantity of Water, after the Oil has been emulsified.

*Emulsion of Cod-Liver Oil* may also be prepared by any other method capable of emulsifying the oil, the following being given as examples:

### II. *Acacia Emulsion of Cod-Liver Oil.*

| | |
|---|---|
| Cod-Liver Oil | 8 fluidounces. |
| Acacia, in fine powder | 2 troy ounces. |
| Syrup of Tolu | 2 fluidounces. |
| Flavoring | a sufficient quantity. |
| Water | enough to make 16 fluidounces. |

Triturate the Acacia with *three and one-half* (3½) *fluidounces* of Water to a smooth paste; then add the Cod-Liver Oil in divided portions, triturating well until the last added portion is thoroughly emulsified. Next add the Syrup of Tolu, and the Flavoring, and lastly, enough Water to make *sixteen* (16) *fluidounces*. Finally, mix the whole thoroughly together.

### III. *Glyconin Emulsion of Cod-Liver Oil.*

| | |
|---|---|
| Cod-Liver Oil | 8 fluidounces. |
| Glyconin | 2½ “ |
| Syrup of Tolu | 2 “ |
| Flavoring | a sufficient quantity, |
| Water | enough to make 16 fluidounces. |

Triturate the Glyconin in a mortar with the Oil, added in small portions at a time, and thoroughly incorporate each portion before adding the next. Then, continuing the trituration, gradually add the Syrup of Tolu, and Flavoring. Finally, add enough Water to make *sixteen* (16) *fluidounces*, and mix the whole thoroughly together.

### IV. *Quillaja Emulsion of Cod-Liver Oil.*

| | |
|---|---|
| Cod-Liver Oil | 8 fluidounces. |
| Tincture of Quillaja | 1 fluidounce. |
| Syrup of Tolu | 2 fluidounces. |
| Flavoring | a sufficient quantity. |
| Water | enough to make 16 fluidounces. |

Pour the Tincture into a suitable bottle, then add the Cod-Liver Oil in portions of about *two* (2) *fluidounces* each, and shake after each addition until a perfect emulsion is made. Next add the Syrup of Tolu and the Flavoring, and lastly, enough Water to make *sixteen* (16) *fluidounces*. Finally, mix the whole thoroughly together.

An 85-per-cent Emulsion of Cod-Liver Oil may be prepared by mixing in the manner just described:

| | |
|---|---|
| Cod-Liver Oil | 8½ fluidounces. |
| Tincture of Quillaja | 1 fluidounce. |
| Syrup of Tolu | ½ “ |
| Flavoring | a sufficient quantity. |

*Note.*—Emulsion of Cod-Liver Oil made with Quillaja should not be dispensed without the direction or consent of the prescriber.

*Flavoring.*—Since no single or compound aromatic can be devised which would be acceptable under all circumstances, the selection of the most suitable Flavoring must be left to the prescriber or dispenser. Among those which are found to be most generally serviceable are the following, the quantities given below being intended for *one* (1) *pint* of finished emulsion, though in some cases a smaller or a larger quantity in the same proportions, may be preferable:

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* Paper read at the Annual Meeting of the Amer. Pharm. Assoc. at Cincinnati.

* From the report of the Committee on National Formulary. See editorial on page 198.

| | | MINIMS. |
|---|---|---|
| 1. | Oil of Gaultheria | 30 |
| 2. | Oil of Gaultheria | 15 |
| | Oil of Sassafras | 15 |
| 3. | Aromatic Spirit (*N.F.*) | 120 |
| 4. | Oil of Gaultheria | 15 |
| | Oil of Bitter Almond | 2 |
| | Oil of Coriander | 2 |
| 5. | Oil of Gaultheria | 10 |
| | Oil of Sassafras | 10 |
| | Oil of Bitter Almond | 2 |
| 6. | *Oil of Gaultheria | 20 |
| | Oil of Bitter Almond | 20 |
| 7. | *Oil of Neroli | 12 |
| | Oil of Bitter Almond | 12 |
| | Oil of Cloves | 2 |

### ELIXIR FERRI PHOSPHATIS, QUININÆ ET STRYCHNINÆ.

#### ELIXIR OF PHOSPHATE OF IRON, QUININE, AND STRYCHNINE.

| | |
|---|---|
| Phosphate of Iron (U. S. Ph., 1880) | 256 grains. |
| Citrate of Potassium | 82 " |
| Hydrochlorate of Quinine | 128 " |
| Sulphate of Strychnine | 1¼ |
| Alcohol | 1 fluidounce. |
| Water | 360 minims. |
| Aromatic Elixir.......enough to make | 16 fluidounces. |

Dissolve the Phosphate of Iron and Citrate of Potassium in the Water, if necessary with the aid of heat. Add the alkaloidal salts to about *ten* (10) *fluidounces* of Aromatic Elixir contained in a bottle; next add the Alcohol, the solution of Phosphate of Iron previously prepared, and, having shaken the mixture, add enough Aromatic Elixir to make *sixteen* (16) *fluidounces*. Finally, filter.

*Each fluidrachm contains 2 grains of Phosphate of Iron, 1 grain of Hydrochlorate of Quinine, and* $\frac{1}{128}$ *grain of Sulphate of Strychnine.*

### SYRUPUS PHOSPHATUM COMPOSITUS.

#### COMPOUND SYRUP OF THE PHOSPHATES.

(*Chemical Food.*)

| | |
|---|---|
| Phosphate of Iron (U. S. Ph. 1880) | 128 grains. |
| Precipitated Phosphate of Calcium | 256 " |
| Bicarbonate of Potassium | 32 " |
| Bicarbonate of Sodium | 32 " |
| Phosphate of Ammonium | 128 " |
| Citric Acid | 1 troy ounce. |
| Glycerin | 1 fluidounce. |
| Phosphoric Acid (50%) | 2 fluidounces. |
| Orange Flower Water | 2 " |
| Tincture of Cudbear | 120 minims. |
| Sugar | 8 troy ounces. |
| Water................enough to make | 16 fluidounces. |

Triturate the Precipitated Phosphate of Calcium with the Bicarbonate of Potassium and Sodium, the Citric Acid, Glycerin, and Orange Flower Water, and gradually add the Phosphoric Acid, stirring until solution has been effected. Dissolve the Phosphate of Iron and the Phosphate of Ammonium in *four* (4) *fluidounces* of hot Water, cool, and add the solution to that previously prepared. Filter the whole through a pellet of absorbent cotton placed in the neck of a funnel, and receive the filtrate in a graduated bottle containing the Sugar. Agitate until the latter is dissolved, then add Tincture of Cudbear, and lastly, enough Water to make *sixteen* (16) *fluidounces*.

### PEPSINUM.

#### PEPSIN.

The digestive principle of the gastric juice, obtained from the mucous membrane of the stomach of the hog, prepared in a dried form, and undiluted with foreign substances. In its commercial from, it is usually accompanied by varying proportions of soluble albuminoids or peptones, which, themselves, have a share in its digestive action.†

*Assay of Pepsin.* I. *Preliminary Assay.*—Prepare an Acidulated Water by mixing 1 liter of Distilled Water with 5 Gm. of Hydrochloric Acid. Mix 0.1 Gm. of the dry and undiluted Pepsin with 0.9 Gm. of Sugar of Milk by thorough trituration in a wedgewood mortar. Weigh of this mixture four portions of 0.1 Gm. (*A*), 0.15 Gm. (*B*), 0.2 Gm. (*C*), 0.4 Gm. (*D*), respectively, place each portion into a wide-mouthed flask or bottle of the capacity of about 100 C.c., together with 40 C.c. of the Acidulated Water, previously warmed, and set the flasks in a water-bath the temperature of which is maintained constantly at 51.6° C. (125° F.). After twenty minutes, add to the contents of each flask 5 Gm. of hard-boiled egg albumen, prepared by boiling fresh eggs for fifteen minutes, then separating the whites and passing this through a sieve having 30 meshes to the linear inch. Each portion of 5 Gm. of egg albumen is to be put into a small warmed mortar, triturated with a portion of the fluid from one of the flasks, the mixture then transferred to the latter, and the mortar rinsed with 10 C.c. of warmed acidulated water, which is added to the contents of the flask. Keep the flasks in the water-bath for thirty minutes, shaking well at intervals of five minutes, and at the end of that time note the condition of the egg albumen in the several flasks. If the pepsin is of good quality, not more than a few undissolved flakes should remain in any but the first flask (*A*). If more than this remains in the fourth flask (*D*), the pepsin should be rejected, as being below the requisite standard.

II. *Actual Assay.* Having thus ascertained the approximate digestive power of the pepsin, and having found this to be of satisfactory strength, make at least two assays in precisely the same manner as just described, but using such a proportion of egg albumen that about one-fourth of it will remain undissolved at the close of the experiment. Then throw the contents of the flask upon a muslin strainer, drain, transfer the residue to a tared capsule or watch-glass, and dry it at 105° C. (221° F.) to a constant weight. Multiply the weight of the dry residue by 7.5, to find the quantity of moist egg albumen to which it corresponds, and deduct the product from 5 Gm., to ascertain the quantity dissolved by the pepsin.

### PEPSINUM SACCHARATUM.

#### SACCHARATED PEPSIN.

| | |
|---|---|
| Pepsin, dry and undiluted | a sufficient quantity. |
| Sugar of Milk | enough to make 100 parts. |

Triturate as many parts of the Pepsin as may be found to be capable of dissolving *five thousand* (5,000) *parts* of egg albumen, by the process of assay given under *Pepsinum*, with enough Sugar of Milk to make *one hundred* (100) *parts*.

### CAFFEINÆ SODIO-BENZOAS.

#### SODIO-BENZOATE OF CAFFEINE.

| | |
|---|---|
| Caffeine | 50 parts. |
| Benzoate of Sodium | 50 " |
| Alcohol | a sufficient quantity. |

Triturate the Caffeine with the Benzoate of Sodium and a sufficient quantity of Alcohol to make a smooth paste, and dry this by exposure in a moderately warm place.

The product contains 50 per cent of caffeine, and is soluble in about two parts of water.

### INFUSUM GENTIANÆ COMPOSITUM FORTIUS.

#### STRONGER COMPOUND INFUSION OF GENTIAN.

| | |
|---|---|
| Gentian | 2 troy ounces. |
| Coriander | ½ troy ounce. |
| Bitter Orange Peel | ½ " " |
| Diluted Alcohol........enough to make | 16 fluidounces. |

Reduce the drugs to a moderately fine (No. 50) powder, moisten it with Diluted Alcohol, pack it in a percolator, and percolate with Diluted Alcohol, until *sixteen* (16) *fluidounces* are obtained.

*Note.*—When *Infusum Gentianæ Compositum* is prescribed, mix 1 volume of this preparation with 3 volumes of water.

### TINCTURA FERRI CITRO-CHLORIDI.

#### TINCTURE OF CITRO-CHLORIDE OF IRON.

(*Tasteless Tincture of Chloride of Iron. Tasteless Tincture of Iron.*)

| | |
|---|---|
| Solution of Chloride of Iron (U. S. Ph. 1880) | 4 fluidounces. |
| Citrate of Potassium | 7 troy ounces. |
| Alcohol | 8 fluidounces. |
| Water....................enough to make | 16 " |

Mix the Solution of Chloride of Iron with *four* (4) *fluidounces* of Water, and dissolve in this the Citrate of Potassium with the aid of a gentle heat. Then add the Alcohol, and when the solution has become cold, make up the volume with water to *sixteen* (16) *fluidounces*. Set the product aside in a cold place for a few days, if convenient, so that the excess of saline matter may separate. Then filter, and pass enough cold Water through the filter to restore the original volume.

*Each fluidrachm contains an amount of Iron equivalent to about 7½ grains of dry Chloride of Iron (ferric).*

*Note.*—This preparation is practically identical in the strength of iron, but not in the quantity of alcohol, with the officinal *Tinctura Ferri Chloridi*.

### SYRUPUS ACIDI HYDRIODICI DECOLOR.

#### COLORLESS SYRUP OF HYDRIODIC ACID.

| | |
|---|---|
| Iodide of Potassium | 128 grains. |
| Hypophosphite of Potassium | 8 " |
| Tartaric Acid | 112 " |
| Water | ½ fluidounce. |
| Diluted Alcohol | 1 " |
| Syrup................enough to make | 16 fluidounces. |

Dissolve the Iodide and Hypophosphite of Potassium in *one-half* (½) *fluidounce* of Water, and the Tartaric Acid in *one-half* (½) *fluidounce* of Diluted Alcohol. Mix the two solutions in a vial, cork and shake it well, then place it in ice-water for about ten minutes; again shake thoroughly, and then filter through a small white filter contained in a funnel, the stem of which dips below the surface of about *fourteen* (14) *fluidounces* of Syrup contained in a bottle. When the liquid has run through, wash the vial and filter with *one-half* (½) *fluidounce* of Diluted Alcohol, added in several portions. Then add enough Syrup to make *sixteen* (16) *fluidounces*. Keep the product in well-stoppered bottles.

---

* Nos. 6 and 7 have been added since the Report was offered to the Association.

† This definition has been criticised as admitting pepsins of unknown mode of manufacture, and as practically rejecting the officinal. The following has been suggested as avoiding these difficulties: "The digestive, etc., etc., . . . prepared in a dry form, and capable of dissolving not less than 500 times its weight of hard-boiled egg albumen, under the conditions prescribed for the process of assay below given." If this strength is adopted, then the assay process will have to be altered so as to make the flask *D* show that 1 part of the pepsin will *at least* digest 500 parts of albumen. That is, the several flasks will have to receive the following quantities of the pepsin, previously mixed with 9 parts of milk-sugar, *A*, 0.025; *B*, 0.03; *C*, 0.05; *D*, 0.1 Gm. These quantities being probably too small, multiples of them may be taken, and proportionately more albumen." [ED. AM. DRUG.]

*Note.*—This preparation is of about the same strength, volume for volume, as the officinal *Syrupus Acidi Hydriodici*.[*]

### LIQUOR CUPRI ALKALINUS.

#### ALKALINE SOLUTION OF COPPER.

#### (Fehling's Solution.)

1. *The Copper Solution.*

| | | |
|---|---|---|
| Sulphate of Copper, pure | 34.639 Gm. | 505 grains. |
| Distilled Water...enough to make | 500 C.c. | 16 fluidounces |

Dissolve the Sulphate of Copper which, before being weighed, should have been reduced to powder and pressed between blotting-paper, in a sufficient quantity of Distilled Water to produce the volume required by the corresponding formula above given.

II. *The Alkaline Solution.*

| | | |
|---|---|---|
| Tartrate of Potassium and Sodium | 173 Gm. | 2,520 grains. |
| Soda (U. S. Ph. 1880) | 60 " | 2 troy ounces. |
| Distilled Water....enough to make | 500 C.c. | 16 fluidounces. |

Dissolve the Tartrate of Potassium and Sodium and the Soda in a sufficient quantity of Distilled Water to produce the volume required by the corresponding formula above given. Set the mixture aside until the suspended impurities have been deposited; then remove the clear solution with a siphon.

Keep both solutions, separately, in small well-stoppered vials, in a cool and dark place. For use, mix exactly equal volumes of both solutions, by pouring the copper solution into the alkaline solution.

On diluting a small quantity of the mixed reagent with about three volumes of Distilled Water, and heating the liquid in a test-tube to boiling, it should remain entirely clear, without any trace of discoloration or precipitate.

Of the metric solution, 10 C.c. correspond to 0.05 Gm. of glucose. Of the other solution, 210 minims correspond to 1 grain of glucose.

### EMPLASTRUM PICIS LIQUIDÆ COMPOSITUM.

#### COMPOUND TAR PLASTER.

| | |
|---|---|
| Tar | 20 parts. |
| Resin | 25 " |
| Podophyllum, in No. 60 powder | 5 " |
| Phytolacca, in No. 60 powder | 5 " |
| Sanguinaria, in No. 60 powder | 5 " |

Melt the Resin and Tar together, then stir in the mixed powders, and as it cools, mould the mass into rolls, or pour it into boxes.

### The Natural History of the Sponge.

IN connection with a recent paper on American sponges, by Mr. E. M. Holmes, the Curator of the Museum of the Pharmaceutical Society, published in the *Pharm. Jour.* (June 4th), the author gives a brief account of the natural history and chemistry of the sponge as follows:

Commercial sponges are confined, so far as at present known, to the Mediterranean and Red seas, and to the waters of the Caribbean islands, Bahaman archipelago, and the southwest and west coasts of Florida. Australia, however, affords a new form,[†] and others have been stated to be found on the Atlantic coast of Brazil. Those of Bermuda, according to Mr. Hyatt, appear to be much coarser than those of Key West, and are just about intermediate between these and those of Australia.

The species show an extreme susceptibility to vary under any change in external conditions, the greatest number of forms and species being produced in tropical or subtropical seas, and occurring most abundantly in archipelagos, or off seas bordered by a number of islands or long reefs, where the floating food of the sponges becomes concentrated in channels between the islands; a continuous current of aërated water and a plentiful supply of food being essential to sponge growth. Temperature also affects their geographical distribution, which appears to be limited by a minimum temperature of 55° F.; sponges flourishing best where the average aërial temperature in winter is between 63° and 70° F. The nature of the bottom on which they are found also modifies their growth and properties. Mr. Saville Kent points out that no sponges of the finest quality have yet been found in seas productive of reef corals. Sandy or clayey bottoms and river sediment are also prejudicial, or any situation wherever there is much gritty matter suspended in the water; the clearer the water the finer the fibre. The depth at which the sponges grow affects greatly the fineness of the threads and the strength and elasticity of the sponge. The best Turkey cup sponges are fished at a depth of not less than 8 to 30 fathoms, some being obtained from a depth of even 40 fathoms. In the American waters, sponges are rarely fished below a depth of 5 fathoms. In Mr. Saville Kent's opinion, it is possible that sponges equal to the finest Turkish varieties may yet be found in greater depths in the Bahamas.

The variation in the form of the sponge depends in some degree on the position and ramification of the oscules, and upon the character of the base to which they are attached, and the force of the current to which they are exposed, and, possibly, also on the depth at which they grow. The cup-shaped sponges are found at the greatest depth. When growing on a sandy or muddy bottom they sometimes become loosened, and are known as "rollers," and are recognized commercially by their rounded bases and the dark tint of the lower half of the sponge.

The reproduction of the sponge takes place from the egg-like bodies which are found about midsummer in the interior of sponges, either aggregated in a sac or scattered through the tissue. Each egg contains, inclosed in a thin membrane, a substance corresponding to the yolk and another like the white of an ordinary egg. The egg increases in size by segmentation of its contents, becomes oval in shape, forms a covering of delicate cilia, and then swims about, ultimately settling down, and developing cells at the lower end, which become fixed to the rock, when the upper end develops in the form of a nipple, and the cilia fall off. The lower end gradually spreads over the rock, the nipple becomes depressed and ultimately perforated; this perforation forming the first oscule or excurrent aperture, smaller incurrent openings or pores being formed around it. The development of amœbiform particles, and the deposit of fibre leads to the multiplication of oscules and pores, or, in other words, to a colony of individuals resembling the first, but connected intimately with each other. The fibres which are formed around the oscule in a more or less vertical direction are called the primary fibres, and those which connect the fibres together, and which appear to originate from the primary fibres by a process of budding, are known as the secondary fibres.

In the living sponge, the primary fibres are found to shade off like the mouth of a trumpet into the gelatinous membrane which forms the outer surface of the sponge. The fibre itself consists of concentric layers made up of fine fibrillæ. These may often be observed at the broken end of the fibres under the microscope. In some localities the dermal or exterior membrane of the sponge is loaded with foreign matter, which by the growth of the sponge becomes drawn into the trumpet-shaped end of the fibres, and ultimately imbedded in their substance.[*] Much of the brittleness and coarseness of fibre of inferior sponges is due to this cause, and in some degree the dark color also, although this is also due to too cold a temperature and an unfavorable situation, as in shallow water. The reason that the secondary fibres are not usually gritty is evident from their not coming in direct contact with the external membrane, so that foreign matter cannot readily enter their structure.

The fibre or keratose of which the sponge skeleton is formed contains as a principal ingredient a substance named spongin, resembling the fibroin of silk in its composition, but differing from it in not yielding tyrosin when heated with sulphuric acid, but only glucosin and leucin.[†] It is insoluble in alcohol, ether, and ammonia, but is dissolved slowly by strong alkalies, and is re-precipitated by dilute acids, but only concentrated acids attack it.

### Estimation of Phosphoric Acid.

PROF. LAUBENHEIMER recommends the following modification of the well-known method of precipitating phosphoric acid by means of the analytical magnesia mixture, when it is required to estimate phosphoric acid in iron preparations.

Mix the solution of the iron preparation (for instance, phosphate of iron) with a 50-per-cent solution of citric acid [enough of this should be used to combine with the whole of the iron present, and to leave an excess]; then add a large excess of concentrated water of ammonia, and afterwards test solution of magnesium (see U. S. Ph., p. 392). Stir well until a precipitate begins to appear. The precipitation will be completed within one hour.—After *Chem. Zeit.*

---

[*] The appellation "decolor" (colorless) has been put into the title partly because the syrup, when made by this formula, is practically colorless and remains so for a long time, but chiefly to have some means of distinguishing it from the officinal preparation.—ED. AM. DRUGG.

[†] It has been suggested that the coast of Queensland, inside the great boundary reef, must be exceedingly favorable for the growth of sponges.

[*] Hyatt, "Revision of the North American Poriferae," part ii., p. 482.

[†] Stadeler, *Am. Chem. Pharm.*, cxi., 12.

### Iodoform Emulsion with Glycerin.

When iodoform is required to be suspended in glycerin, as it is often demanded in surgical practice, the iodoform, owing to its high specific gravity, rapidly settles to the bottom. This may be remedied, to a certain extent, by first triturating the iodoform with a mixture of equal parts of glycerin and water, and afterwards to incorporate with this the glycerin. The latter will keep suspended with the resulting mixture or emulsion for a sufficiently long time to permit its being poured out without alteration of strength by precipitation.

### Linimentum Ammoniæ.

**Prof. Remington**, in a paper read before the Pennsylvania Pharm. Assoc., stated that ammonia liniment, when made by the formula of the U. S. Ph., which directs cotton-seed oil, will separate into two layers, as the cotton-seed oil is not saponified by mere agitation with ammonia. The addition of a little alcohol retards or lessens the separation, but does not entirely prevent it. As the commercial olive oil which was formerly directed to be used consists almost entirely of cotton-seed oil, it is useless to go back to the old formula. An unobjectionable preparation, however, is obtained by mixing

| | |
|---|---|
| Lard Oil | 70 parts. |
| Water of Ammonia | 30 parts. |

### Carmine Color.

**Mr. Joseph W. England** read a paper before the Pennsylvania Pharm. Association, on the above subject, in which he pointed out the unsatisfactory results obtained when carmine solution prepared by the ordinary methods is added to alkaline or acid liquids. He recommended the following as far superior:

| | |
|---|---|
| Carmine, No. 40 | 240 gr. |
| Water of Ammonia | 8 fl. oz. |
| Glycerin | 8 fl. oz. |
| Water | enough to make 8 fl. oz. |

Rub the carmine to powder in a mortar, add first enough water of ammonia to make a paste, and gradually the remainder so that the carmine may dissolve. Next add the glycerin, and warm the whole in an evaporating dish until the excess of ammonia has evaporated; finally add enough water to make 8 fl. oz.

The color of this solution is ruby red, and not darkened by ammonia.

### Boric Acid as an Antiseptic.

In reply to a query of the New York State Pharm. Association, regarding the alleged development of "microbes" or "germs" in a saturated aqueous solution of boric acid made with distilled water, Dr. R. G. Eccles, of Brooklyn, reported that in a series of test-liquids prepared for the purpose, which were examined from time to time, he has failed to find any microbes which could have developed therein. A recent saturated solution of boric acid, purposely infected with the "fungoid growth" from a solution of sulphate of strychnine, did not develop any more of it, but the boric acid was unable to kill it entirely. A saturated or 4-per-cent solution of boric acid has been found, in general, to render the lower organisms inert or inactive, though it has been shown that they are not absolutely destroyed. The chief effect probably is to render them incapable of multiplication. Wounds treated with boric acid exhibit healthy granulations, without any signs of putrefaction, but the pus may contain many micrococci. Boric acid, therefore, is an antiseptic, but neither a disinfectant nor a germicide.

### Extract of Vanilla.

**Mr. Clay W. Holmes** reports, in a paper read before the New York State Pharm. Association, that he finds from a series of carefully conducted experiments, that in making extract of vanilla, the most satisfactory product is obtained by employing the pulp of vanilla beans (deprived of the rind) and a menstruum consisting of 3 parts of deodorized alcohol and 1 part of water. The extract may be obtained by maceration. The author believes that while the rind contributes much to the "body" of the extract, the pulp contains most of the flavor.

[Note.—In our experience, a very superior extract of vanilla may be obtained by digesting vanilla beans, previously reduced to a moderately coarse powder, with the aid of twice their weight of sugar, in an iron cylinder or strong can, capable of standing considerable pressure, with diluted alcohol, at a temperature of at least 176° F. If the can or cylinder will stand it—and this fact should be carefully ascertained beforehand—it is best to immerse the can into a boiler or kettle in which water is kept at a boiling temperature. The digestion should be continued for at least 24 hours, and the longer it can be continued afterwards the better for the result. A balsam of Peru can may serve for this purpose, but it must be tested for its resistance to pressure.—Ed. Am. Dr.]

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## EDITORIAL.

The notable event in pharmaceutical circles during September was the meeting of the "A. P. A." at Cincinnati. We devote the greater portion of this number to a report of the proceedings and to the text of many of the papers. Preceding the meeting, some of our cotemporaries were greatly excited over the disclosures of bad management, if not of absolute peculation or fraud, which they predicted, but the reports which we have received thus far make it appear that the meetings of the Association were never more harmonious, and its finances never so flourishing as at present.

In August, 1885, we made the following suggestion relative to the reorganization of the proceedings of the Association:

"The present state of the affairs of the N. R. D. A. should serve to point out to the American Pharmaceutical Association its opportunity for advancing the interests of pharmacy generally. Had there existed in the composition of the more scientific body some provision for discussion and action upon matters that are purely questions of trade policy, the former association would, probably, never have come into existence. There are now many reasons why it may be desirable to provide for the consideration of such topics as they may from time to time be presented, even if it involves the addition of another day to the session, or greater attention to economy of time by condensing certain reports into abstracts to be presented at the meeting, while the detailed reports may be postponed for official publication.

"There is no good reason why pharmacists should have separate organizations for considering trade interests independently of other matters of a more professional nature, and the truth of this has been sufficiently demonstrated during the past two years by the appointment of nearly the same persons as representatives in the A. P. A. and N. R. D. A., and the coincidence of time and place of meeting for both bodies."

A perusal of the report of the meeting this year shows that our suggestion has been adopted, with the additional improvement of a division of the business proceedings into sections, each electing its chairman *pro tem.* This arrangement will certainly give the greatest flexibility to the organization, and enable two or more sections to be in session at the same time if the occasion demands, It will also relieve the president and secretary of the Association of some portion of their labors, and develop the talent for directing the business of the Association in a larger proportion of its members.

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The change in the method of acquiring new members promises a very great increase in their numbers. A direct invitation on the part of the Association would appear to demand but little personal solicitation to render it effective, and we shall be greatly disappointed if the list of active members is not doubled at the next meeting.

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Among the many occasions for congratulation attending the meeting at Cincinnati, one of the chief is the choice of Prof. J. U. Lloyd to the presidency. The Association could not have a better officer to organize its business under the new regime. When President Lloyd has worked out the details, his successor will find but little left to be accomplished in that direction.

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### Selections from the National Formulary.

At the last meeting of the American Pharm. Association, the National Formulary Committee submitted their report, announcing the completion of their work in all its important details, and submitted some specimens of formulæ, to show the condition in which they would be printed unless some better substitute would be offered previous to going to press.

Among these specimens there are several which tried the patience of the Committee in a severe manner. It was, for instance, exceedingly difficult to come to a satisfactory decision as to the *kinds* of emulsions to be introduced, some advocating only *one* (and frequently differing in their choice of this *one* from each other). The Committee finally concluded to adopt the process which is least likely to fail in the hands of even the less experienced, as the principal one, but to give also formulas for others.

Regarding the former bugbear of elegant pharmacy, viz., the elixir of the phosphate of iron, quinine, and strychnine, the formula here offered is believed to be the very best that can be devised. It is exceedingly simple, and not liable to failure.

The formula of the compound syrup of phosphates has also been greatly improved by the addition of phosphate of ammonium, the suggestion of which is due to Mr. Rouillion, of Brooklyn. The process will be found easy and satisfactory.

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Attention is called to the fact that the Committee on National Formulary will be glad to receive criticisms or proposed improvements upon the formulæ presented in their report (see page 194), if these are sent to them previous to the 15th day of October. Communications may be directed to any member of the Committee, or to the Chairman of the Formulary Committee, care of College of Pharmacy, 209-211 East 23d street, New York.

◆

**Harmful Effects of Kerosene Stoves.**—Dr. D. F. Lincoln, in a letter to the *Boston Medical and Surgical Journal*, narrates a personal experience in Savannah with a kerosene stove. In a room containing 1,100 cubic feet of air space, he introduced a kerosene stove for heating purposes, being able to raise the temperature by its means eighteen degrees. Although there was some odor, nevertheless he did not experience any personal discomfort. One evening he noticed that the reading lamp was dim, the flame having shrunk to half its size. When he carried it into the entry, it burned brightly. He subsequently tested the air with Walpert's air-testing apparatus, and found the amount of carbonic acid had reached sixty-seven parts per thousand, the normal amount being three or four parts. Each of the two burners in the stove was four inches in length, and generated as much carbonic acid as eight or ten common lamps. In a well-built house with tight doors the effect might be doubled.

## QUERIES & ANSWERS.

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***Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer, for the information of the editor, but not for publication.***

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No. 2,017.—**Rubber Plasters** (Ohio).

The last Committee of Revision of the U. S. Pharm., among other matters, considered the advisability of introducing a rubber plaster, or at least a basis for one, into the pharmacopœia, but it soon became evident that no practical formula could be devised for working on the small scale. In fact, a homogeneous and handsome plaster having a rubber base cannot be made without the use of heavy machinery. At the last meeting of the Pennsylvania Pharm. Assoc., Dr. J. J. Edmondson read a paper on the subject, in which he stated that the mere addition of solutions of caoutchouc to ordinary plaster masses does not render the latter more adhesive. But a good base may be made by mixing prepared caoutchouc 2 parts, with 1 part each of Burgundy pitch and olibanum. The prepared caoutchouc is obtained by soaking the crude commercial rubber in hot water, crushing it between corrugated rollers, washing with water, drying, and then softening it by passing it between smooth rollers, when the other ingredients may be incorporated with it. The basis thus prepared can be further mixed, by means of heavy rollers, with resins, extracts, etc., as desired, and the mass may then be spread, but requires special machinery for this.

No. 2,018.—**Oleoresin of Male Fern** (E. O. D.).

"What can I do with the sediment which collects at the bottom of bottles containing 'oil of male fern.' I have several original bottles in stock which persist in depositing this sediment after standing for some time. Can I not utilize it after the liquid portion has been poured off?"

You would commit a serious error, if you were to pour off and dispense the clear liquid portion of the "oil," or, more correctly, oleoresin of male fern, since the principal tænicidal constituent, viz., the filicic acid, has to a large extent separated from it, and crystallized out. It is the *sediment* in this case which represents the most valuable and active portion of the medicament. When male fern root is extracted with ether, a clear ethereal solution results, from which the filicic acid would not separate, were it not that the solution is afterwards evaporated and deprived of ether.

Previous to the appearance of the last U. S. Pharm., sufficient attention had not been drawn to this fact, and many pharmacists dispensed the clear portion of the oleoresin, rejecting the sediment. The last pharmacopœia, however (see under *Oleoresina Aspidii*), states:

"Oleoresin of Aspidium usually deposits, on standing, a granular-crystalline precipitate. This should be thoroughly mixed with the liquid portion before use."

The German Pharm. had omitted to give such directions, but the Pharmacopœia Committee of the German Pharm. Association has recently recommended the addition of such a passage.

No. 2,019.—**Antipyrine, Benzoic Acid, and Camphor.**

Our attention has been drawn to a peculiar phenomenon appearing when antipyrine, benzoic acid, and camphor are triturated together. The result is a *liquid*. Our informant told us that this did not occur when any one of the three ingredients was absent. We have, however, ascertained, by a simple experiment, that the camphor is not at all necessary to produce the reaction. When antipyrine and benzoic acid are triturated together in equivalent proportions (188 parts of antipyrine to 122 parts of benzoic acid), a liquid mass results very readily. When the relative quantities vary from those just stated, the mass turns out more or less liquid in proportion to the closeness with which the above figures are approached.

The resulting liquid contains or constitutes a benzoate of antipyrine, which is moderately soluble in water, and readily soluble in alcohol and ether.

When camphor and antipyrine, or camphor and benzoic acid are triturated together, no liquefaction occurs.

On triturating the three substances together, the only thing noticeable is this, that the liquefaction appears to occur a little more speedily. The probable reason is, that the liquid compound of benzoic acid and antipyrine has a rapid solvent action upon the camphor, and the increase in the bulk of liquid mass thereby produced facilitates the combination and solution of the remainder.

There is no evidence that camphor enters here into a combination similar to that which it forms with chloral, thymol, and other substances.

No. 2,020.—**Photoxylin** (E. S.).

Photoxylin is the name of a peculiar kind of gun-cotton, first prepared in Russia, according to information in our possession. It is prepared, as we have been told, from a very superior kind of wood-pulp, and furnishes a collodion of very superior cohesive power. This property has been recognized in European surgical practice, inasmuch as surgical collodion prepared from photoxylin is preferred by several of the leading continental surgeons.

Some time ago, we endeavored to have some photoxylin imported for experimental purposes, but we found it impossible to procure it, as the shipping laws prevent its being carried on board of passenger vessels. We have since then ascertained that the article is identical with "Mann's Collodiumwolle" (or Mann's gun-cotton), which is sold by the photographic supply houses. If you apply to the latter, for instance to Anthony & Co., or the Scovill Manufacturing Co. of New York, you will be able to obtain the article.

No. 2,021.—**Preparation of Peroxide of Hydrogen on the large Scale** (W. K. N.).

Which particular process is used by the different makers of peroxide of hydrogen is not known to us. But it is evident that the largest manufacturers of this article, who turn out many thousand pounds a week, cannot employ the usual methods quoted in chemical text-books. On glancing over the literature of the subject, we find that Duprey's process (*Journ. f. prakt. Chem.*, 88, 440) appears to have the best chance of being employed on a large scale, at least among those which have been published. The process is as follows:

A rapid stream of carbonic acid gas is conducted through cold water, and to it are gradually added small portions of peroxide of barium reduced to an impalpable powder. According to Otto, it is preferable to use the hydrated peroxide of barium, which is obtained as follows: Finely powdered peroxide (dioxide) of barium, or the commercial so-called hydrated peroxide, is added to dilute hydrochloric acid, until the latter is nearly saturated. The solution is filtered and cooled, and then mixed with just enough solution of baryta to precipitate the foreign oxides and silica, and to produce a small precipitate of hydrated peroxide of barium. It is then again filtered, and by addition of concentrated solution of baryta, the hydrated peroxide of barium precipitated in a crystalline state. This may be preserved in a moist condition for a long time without spoiling, provided it is kept in air-tight vessels.

The products of the reaction are insoluble carbonate of barium and a solution of hydrogen peroxide. When a considerable amount of the former has been produced, it is allowed to deposit, the clear solution removed, and the process continued as before. The liquid must be kept cold, towards the end, by the application of ice, and care must be taken that there is always an excess of carbonic acid gas, which should keep the precipitate as it forms in suspension and prevent it from settling to the bottom. The small amount of barium which remains finally in solution as bicarbonate may be precipitated by the addition of a few drops of dilute sulphuric acid. A small excess of the latter is an advantage, as it will cause the product to keep better.

The advantage of this method is that it does not require any filtration, and that it furnishes a perfectly pure product if the hydrated peroxide of barium has been used. A vital condition of success is to add the peroxide in small quantities at a time, and if it is in a dry condition, to have it in the finest possible powder.

The preparation of peroxide of barium on the large scale, for the purpose of employing the product in the manufacture of hydrogen peroxide, is carried on by passing moist atmospheric air, freed from carbonic acid gas, over anhydrous baryta raised to faint redness in iron retorts.

No. 2,022.—**Brilliantine** (D.).

We are unable to give the composition of the particular brand of brilliantine you mention. A good preparation is the following:

| | |
|---|---|
| Castor Oil | 8 parts. |
| Glycerin | 1 part. |
| Alcohol | 10 parts. |
| Flavoring | q. s. |

A more dense preparation, more of the nature of a pomatum is produced by mixing:

| | |
|---|---|
| Veal Fat | 4 oz. |
| Spermaceti | 2 " |
| Castor Oil | 2 " |

and adding suitable aromatics, for instance, 30 drops of oil of bergamot and 2 drops of oil of clove.

No. 2,023.—**Camphorated Dover's Powder** (Junior Clerk).

This is a preparation introduced by the eclectics, and also called Eclectic Dover's Powder. It is composed of

| | |
|---|---|
| Opium, powdered | 30 grains. |
| Ipecac, powdered | 60 " |
| Camphor, powdered | 120 " |
| Cream of Tartar, powdered | 480 " |

Mix thoroughly.

Every 23 grains contain 1 grain of opium. The average dose is about 10 grains.

No. 2,024.—**Mouth Wash** (Ana).

We have already once before in this volume given a formula for a pleasant, refreshing mouth wash, but as we did not state the exact proportions to which the alcoholic solution of oils should be diluted, we will give the formula in detail:

| | |
|---|---|
| Safrol | 360 min. |
| Oil of Pinus Pumilio | 120 " |
| " " Curaçao | 120 " |
| " " Vetivert | 6 drops |
| " " Wintergreen | 13 " |
| " " Anise, Saxony | 24 " |
| " " Rose-Geranium | 6 " |
| Deodorized Alcohol | 24 fl. oz. |
| Syrup | 4 " |
| Water | enough to make 96 " |
| Phosphate of Calcium | q. s. |

Dissolve the Oils in the Alcohol, gradually add the Syrup and Water, constantly shaking; then incorporate the Phosphate of Calcium and filter through a wetted filter, returning the first portion until it runs off clear.

No. 2,025.—**Copaiba Emulsion** (Junior Clerk).

This inquirer asks, what plan gives the best satisfaction in making a copaiba emulsion, and is at the same time the most expeditious.

As the writer mentions acacia in his letter, we presume he would prefer this as the emulsifying agent. In this case, the balsam of copaiba may be emulsified by triturating 2 parts of powdered acacia in a mortar with 3 parts of water, and then adding 4 parts of balsam of copaiba in portions, and continuing the trituration until the emulsion is completed. The above proportions are the most suitable for preparing the emulsion proper. If more water or balsam is wanted in the mixture, they may be subsequently added, though, if too much is added, the finished emulsion will not keep as long as it otherwise would.

A very simple method of emulsifying balsam of copaiba is by means of tincture of quillaja, which, for this purpose, is best prepared in the following manner:

| | |
|---|---|
| Quillaja, in fine chips | 8 tr. oz. |
| Alcohol | 16 fl. " |
| Water | enough to make 48 fl. " |

Place the quillaja in a suitable vessel with 2 pints of water, and boil for 15 minutes; then strain and add enough water through the strainer to make the strained decoction, when cold, measure 2 pints. Pour this into a bottle containing the alcohol, let the mixture stand 12 hours, and filter it through paper.

A fluidounce of this tincture will readily emulsify 4 fluidounces (and even more) of balsam of copaiba. The more water is added to this emulsion, the sooner will it separate, but it may be readily restored by shaking.

No. 2,026.—**Testing Urine for Morphine or Opium Constituents** (D. E. and S. E.).

When opium or morphine has been taken in rather large doses, and for some time, their detection in the urine is not difficult. If, however, the drug or the alkaloid have been given in small doses, and not in frequent intervals, it is often difficult to detect them. [Of course, opium, as such, cannot be detected in the urine, but the presence of certain constituents of it usually furnishes a clue to the fact that it has been taken.]

Among the many constituents of opium, there are two from whose *simultaneous* presence in the urine it is safe to judge that opium has been taken or administered. These two substances are meconic acid and meconine. If only meconic acid were found in the urine, it would be unsafe to conclude that opium has been taken, because meconic acid may have been introduced into the organism in other combination, for instance, as bimeconate of morphine.

If morphine alone is to be looked for, irrespective whether opium or the alkaloid itself has been taken, it is necessary to separate the latter in as pure a condition as possible. This may be accomplished by means of amylic alcohol in the following manner.

Evaporate the urine to one-fourth, add to it four times its volume of alcohol containing about two per cent of sulphuric acid, and set it aside for twenty-four hours. Filter and evaporate, or distil off the alcohol. Allow the remaining liquid to cool, and filter, washing the filter with a little water.

We have now an acid liquid which can be examined, if required, for meconine, meconic acid, and morphine.

If it is our object to search only for morphine, we shake the *acid* filtrate last obtained with successive portions of purified, colorless amylic alcohol, until this ceases to become colored. This treatment removes substances which would subsequently affect the purity of the morphine still to be extracted. The aqueous liquid is then rendered alkaline with ammonia and shaken with *hot* amylic alcohol, which is removed and evaporated. If an impure residue remains, the process should be repeated, in which case it is sometimes useful to reverse the method, namely, instead of evaporating the amylic solution, to shake it with acidulated water which will extract the alkaloid from it. The final residue may then be tested for its identity as morphine in the following manner:

1. Transfer a little of the residue upon a watch-glass' add to it a few drops of dilute hydrochloric acid, evaporate to dryness at a temperature not exceeding 120° F., then dissolve it in a few drops of water, and add a drop of *very* dilute solution of ferric chloride (free from acid). This will produce a magnificent blue color.

2. A drop of nitric acid placed upon a portion of the residue, or added to a moderately concentrated solution of it, produces an orange-red color, which is destroyed by adding sulphide of ammonium, but rendered red-brown by stannous chloride.

3. A few drops of Froehde's reagent (concentrated sulphuric acid, containing in each cubic centimeter 0.01 Gm. of molybdate of sodium or ammonium, and freshly prepared), when brought in contact even with traces of morphine, assume at once a magnificent violet color which soon turns green, brown-green, and yellow, becoming after twenty-four hours bluish-violet.

If the whole of the principles above mentioned are to be looked for, that is, if the fact of opium having been taken is to be established, then the acid liquid, prepared as before directed, is first shaken with 2 successive portions of benzin (boiling at 176° F.). The benzin is evaporated, and to the dry residue a few drops of colorless concentrated sulphuric acid are added. This will gradually assume a greenish tint, which deepens to red in 24 to 48 hours. If this greenish or red solution is cautiously and gently heated, it will become emerald-green, then blue, violet, and lastly again red.

This reaction indicates the presence of meconine. But it is usually obtainable only in cases when toxic doses of opium have been taken. In the case of small medicinal doses, it often fails, and there remains then only the test for morphine and meconic acid, the latter of which, however, is not a positive proof that opium, as such, has been taken, as has already been mentioned.

To detect the meconic acid, the acid liquid which had already been shaken with benzin, is next shaken with two successive portions (about equal volumes) of amylic alcohol, the amylic solution thoroughly shaken with distilled water (which removes traces of other constituents), and the washed amylic solution then evaporated to complete dryness (in order to dissipate any volatile acids that might have been extracted at the same time). The dry residue is treated with a little boiling water, and the solution may be tested after cooling at once, or it is preferably neutralized, while hot, with magnesia, and passed through a small filter which is washed with a few drops of water. The filtrate, if it contains meconic acid (or meconate of magnesium, as the case may be), on being treated with a few drops of dilute solution of ferric chloride, assumes a deep blood-red color, which is neither destroyed by hydrochloric acid, nor by boiling (difference from acetic acid), nor by addition of chloride of gold (difference from sulphocyanic acid).

The remaining acid liquid is now still to be tested for morphine. It is first freed from the traces of amylic alcohol which retains it in solution, by being shaken with petroleum ether (boiling point below 140° F.), and after removal of the ethereal layer, rendered alkaline with ammonia. It is then immediately shaken with two successive portions of hot amylic alcohol. The further procedure is the same as that above described, when morphine alone is looked for.

No. 2,027.—**Cannabin Tannate** ("Meta").

The *Cannabinum tannicum* of Merck has been recommended and much employed as a hypnotic, in doses of 4 to 8 (and even up to 16) grains, in cases of simple sleeplessness. It can be used where both morphine and chloral are contraindicated. Its chemical nature and mode of preparation are not yet exactly known, but Dr. Bernh. Fischer, in his useful little work on "Die neueren Arzneimittel" (Berlin, 1887), states that the following is probably the process, at least in its general features.

The herb (Cannabis indica) is first deprived of its poisonous ethereal oil by distillation; it is then extracted with water, and the aqueous extracts mixed with solution of neutral acetate of lead, whereby the various tannic acids which are present are precipitated as tannates of lead. The filtrate is now mixed with basic acetate of lead (Liquor Plumbi Subacetatis), whereby the glucosides are precipitated as insoluble lead compounds. The latter are washed, suspended in water and decomposed by hydrosulphuric acid. After further purification they are combined with tannic acid. The commercial tannate of cannabin probably contains several glucosides, but it is important that the powerful alkaloid *tetanine* existing in cannabis indica should be separated from them.

The product appears in form of an amorphous, yellowish or brownish-gray powder of very faint odor of hemp, a somewhat bitter, strongly astringent taste, little soluble in water, alcohol or ether, but soluble in warm water acidulated with hydrochloric acid, and even in cold alcohol similarly acidulated. The base, cannabin, appears to be closely related to alkaloids, as it may be separated from the compound by adding soda to it and dissolving it out with ether.

No. 2,028.—**Sulphides of Sodium and Potassium** (F.).

This correspondent draws our attention to a passage which has been published in a recent number of a Western pharmaceutical paper. The passage is as follows:

"There is no sulphide of sodium. It is characteristic of sodium and potassium, that they do not form sulphides."

And he asks us to state whether this remark is correct.

As it stands, it is not correct. In analysis, when the several groups of elements are separated from each other, a certain number of them form insoluble sulphides, which enables their separation from others. There are finally left certain others which do not form *insoluble* sulphides, or may not form sulphides at all under the given circumstances, and to this group belong both sodium and potassium. If the above-quoted passage was intended to apply to results of analytical methods, and was meant to convey the idea that there are no *insoluble* sulphides of sodium or potassium which can be thrown down as precipitates, it might have been correct. But there are well-characterized *soluble* sulphides of both of these elements, which can be obtained in various ways.

Of potassium and sulphur, not less than five different compounds are known, all of which are soluble in water, while those richer in sulphur are also soluble in alcohol. Instead of enumerating them here in detail, we will refer you to Roscoe and Schorlemmer, "Treatise on Chemistry," II., 1, 97; 154. Graham-Otto's "Ausf. Lehrbuch d. Chemie," II., 3, p. 240–246; and 444–445).

No. 2,029.—**Angostura Bitters** (Melbourne).

The analyst you mention in your letter has never, to our knowledge, published anything relating to the composition of these bitters, which are comparatively unknown in Europe. The formula of the original "Angostura Bitters" has never been published; but the following is said to furnish a product resembling it:

Angostura Bark, Canada Snake Root (Asarum Canadense), Serpentaria, Liquorice Root, Cinchona (yellow), Taraxacum, Pimenta, each 10 oz.; Cardamom, 6 oz.; Gentian, Balsam Tolu, Orange Peel (sweet), Rhubarb, Galanga, each 4 oz.; Curcuma, 8 oz.; Nutmeg, Coriander, Catechu, Wormseed, each 2 oz.; Caraway, Cinnamon, each 1½ oz.; Red Saunders, 1½ lb. Grind all the solid substances together and macerate them during a fortnight in 50 gallons of diluted alcohol; then add 30 lbs. of honey, and lastly filter.

As will be seen, the preceding formula directs nearly every commonly used aromatic. It is probable that a much smaller number would make a more agreeable compound (if "agreeable" is the proper word).

No. 2,030.—**Prescription Query** (Alabama).

We are asked what is meant by the following prescription:

℞ Pulvis Potass. Carb. et Tartrat.,
Ferri Sulph. ex.................... ..............āā ʒ ij.

M. et fnt. pil. No. xlviii.

Our correspondent says that he has had this presented to him a number of times. We presume he filled it by disregarding the two words "et Tartrat." If he did so, he did exactly right.

We hold that the words "et Tartrat." are miswritten for "e Tartaro." Formerly, when potash salts were obtained chiefly from wood-ashes, the commercial carbonate of potassium was too impure for medicinal use. A pure carbonate was prepared by igniting the cream of tartar (argols) deposited by wine during fermentation. This variety of carbonate of potassium used to be designated as *Potassii Carbonas e Tartaro*, or *Potassii Carbonas e Tartari Crystallis*, and it is even now prescribed sometimes under this name by old practitioners, or by those who have acquired their medical or therapeutic stock of knowledge from older books.

The above prescription is, therefore, equivalent to the usual formula for Blaud's pills, with omission of the excipient.

No. 2,031.—**Orange Culture in California and Cuba** (R.).

We cannot afford the space for a detailed answer of the query of our correspondent, who desires information on the relative qualities of the products (oil, etc.) derived from the several localities on this continent where oranges are grown, and also on other points connected therewith. We will, however, refer him to several works which will give him probably all the information that is publicly available. Regarding Cuba, we are not acquainted with any work treating especially on this subject. But the work presently to be quoted, by Rev. T. W. Moore, may partly cover the ground, we believe: "Die Tropische Agrikultur," von Heinrich Semler, San Francisco, 8vo, Wismar, 1887. Vol. II., pp. 1–106 *b*. "Treatise and Handbook of Orange Culture in Florida," by Rev. T. W. Moore, 12mo, New York (second edition). "Reports of the United States Consuls" (Washington published by Government), vol. VI. (No. 22) p. 610; also vol. XII. (No. 41½).

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[ORIGINAL COMMUNICATION.]

## TRIACANTHINE.

BY ABRAHAM L. METZ, PH.G.

Some time ago, I received copies of the *Medical Record* (New York), in which there appeared an announcement of the discovery of a new local anæsthetic by Mr. Goodman, V.S., and Dr. Seward, with a report of the physiological results obtained by Drs. Claiborne and Knapp. This new alkaloid was stated to be derived from a Southern tree called the "Tear Blanket Tree," and growing abundantly in Louisiana. The alkaloid was called stenocarpine, because, as it was said, the plant resembled the *Acacia stenocarpa*. The description of the plant by Mr. Goodman corresponded almost exactly with *Gleditschia triacanthos* L., and as the story connected with the discovery produced some doubt in my mind, I determined to verify the statement. Accordingly I procured about 180 grammes of the leaves of *Gleditschia triacanthos*, through the kindness of Dr. Joor, Professor of Botany at Tulane University of this city. I examined the leaves for alkaloid, but the yield was almost infinitesimal, furnishing but a crystal or two, of a brownish color, as a result, which were used up in proving their alkaloidal character. I did not obtain enough to make any physiological experiments, but as I am working on a larger quantity, I shall probably be able to report in the near future.

It appears to me that the name stenocarpine—*if* this alkaloid is really derived from the before-mentioned source—is misleading and unscientific, and that the name of *triacanthine*[*] should be substituted for it, in accordance with the custom to name alkaloids after the botanical name of the mother-plant. *The Gleditschia triacanthos* has several local names in this State. In the northern portion it is called *Thorn Tree*, while in this section (New Orleans) it is called *Sweet locust*. It grows abundantly in this State, commonly in the company of oaks and other trees, and forms a part of the forests that cover the most fertile soils. I have seen it stated that trials made with *Gleditschia triacanthos* in Philadelphia have given negative results. This may possibly be due to the fact that the quantity of leaves was not sufficient to produce a result, or perhaps the Northern tree does not yield an alkaloid, or the alkaloid obtained from it does not possess the remarkable properties ascribed to "stenocarpine."

In different parts of the United States the *Gleditschia triacanthos* is called, indifferently, *Sweet Locust* or *Honey Locust*.

The French of Illinois call it *Févier* (meaning bean tree), while the French of Louisiana call it *Pique Amaurette*.

The reason why the *Tree* is called the *Tear Blanket Tree* is because the legumes hang in bunches of 6 and 8, looking like strips of a torn blanket.[†] Thorn tree is a very appropriate name considering the length of the thorns. In situations which are favorable for the growth, as is observed in this State, the tree attains a very ample size. In St. Bernard Parish and other parts of this State, it attains a height frequently of 60 feet, while in the swamps lying back of this city, from 20 to 30 feet is the general average and it usually measures from 1½ to 2 feet in diameter. The sweet locust can be easily recognized by its bark, which at intervals of a few inches detaches itself laterally in plates 3 or 4 inches wide, and from 2 to 3 inches thick, and presents 3 or 4 crevices of inconsiderable depth, opening irregularly from the bottom to the top. The large thorns which cover the branches and frequently the trunk of young trees afford another very distinct character. These thorns are sometimes several inches long, ligneous, of a reddish color, and armed at some distance from the base with two secondary thorns, about one-half the size of the first.

The Choctaw Indians formerly utilized these thorns as *needles*. The leaves of the sweet locust are pinnate and compound, with small, oval, serrate, and sessile leaflets. This foliage is elegant, and of an agreeable tint, but is so thin that it scarcely obstructs the passage of the sunbeams. It is shed annually at the approach of winter, and therefore I do not understand what Dr. Seward means by winter and summer leaves. The flowers are small, of a greenish color, disposed in bunches, and are inconspicuous, and this accounts for the fact that Mr. Goodman has never seen the tree blossom. The fruit is in the form of flat, crooked pendulous pods, from 12 to 18 inches long, of a reddish-brown color. The pods contain brown, smooth, hard seeds, enveloped in a pulpy substance (something similar to Cassia fistula) which for a month after maturity is very sweet, and which then becomes extremely sour. Beer is sometimes made by fermenting this pulp when fresh, but the practice is by no means general.

The heart wood of the sweet locust nearly resembles that of the locust (*Robinia*), but its grain is coarser and its pores more open. In these respects it is more strikingly characterized even than the wood of the red oak. When perfectly seasoned it is extremely hard, and is used for making *cams* and *cogs* for wheels.

Dr. Jackson states in the *Medical News* that the *Gleditschia monosperma* (water-locust, or water-honey-locust) may possibly be the tree in question, and that it is common in Louisiana. The *Gleditschia monosperma*, however, is not as abundant here as one would suppose, as it is only found along the bayous near the sea-coast, but whether it contains an alkaloid remains yet to be determined.

NEW ORLEANS, LA., September 20th, 1887.

Shortly after the receipt of the preceding paper by Mr. Metz, the author sent us a copious supply of the leaves, pods, and spines of the "tear-blanket tree." These were recognized without any difficulty as derived from *Gleditschia triacanthos* L. In the *Medical Record* of October 1st, Dr. Claiborne publishes a paper in which he relates the steps he took to indentify the tree. Among others, from whom he received information, he mentions Dr. Jos. F. Joor, professor of botany at the Tulane University in New Orleans, who writes:

"The description of the tree as given by Mr. Goodman exactly tallies with that of the Gleditschia triacanthos. But the name "tear-blanket-tree" is locally applied to various prickly trees and shrubs, chiefly Texan and Arizonian, and one of these was the *Acacia* (Vachellia) *farnesiana* which grows along the Mississippi between Baton Rouge and New Orleans." He had never heard the name "tear-blanket" applied to any tree indigenous in Louisiana. The *Acacia farnesiana*, however, never grows over seven or eight feet high in Louisiana; it possesses *white* spines which are straight and *unbranched*, and bears a pod different from that of Gledistchia.

Dr. Claiborne points out a number of easily accessible localities, in New York, where the Gleditschia triacanthos may be found. We know a number of others, including some localities in Connecticut.

According to the information which Drs. Seward and Goodman must have furnished to Dr. Claiborne, the active principle was prepared on the banks of the Mississippi in the vicinity of the tree from which the first poultice was made. Dr. Seward and Mr. Goodman also informed him that the simplest domestic utensils were used in the extraction of the principle. And further, Mr. Goodman wrote him that "the new alkoloid is not, strictly speaking, a powder, but a semiliquid mass, of a greenish tint." Also, Dr. Seward informed him "that the leaves were treated before they became dry, and that he was not able to extract the alkaloid from them after they had dried. All of the solution of the alkoloid at present possessed was made before leaving Louisiana." Dr. Claiborne reports further results obtained with the alkoloid.

These results show conclusively that the solution used by him—as well as by others—is undoubtedly possessed of remarkable powers. He states, for instance, that he had frequently applied cocaine in the same way as the new alkaloid, but in stronger solutions, and that he can safely say that the anæsthetic effect of gleditschine is decidedly more profound and lasting than that of cocaine.

It seems to us that the questions necessary to be fully answered, before the claims of the new alkaloid are recognized, are the following:

1. Does the Gleditschia triacanthos, in its fresh condition, contain a proximate principle having the properties claimed for "stenocarpine" or "gleditschine?"
2. If northern plants do not contain this (supposing it should be found absent in those growing about here), is it present in southern plants?
3. If it *is* present, is it lost or dissipated on drying?
4. If it is not obtainable from the alleged source, in

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[*] The name *triacanthine* appears to us preferable to *gleditschine*, which latter has recently been proposed in place of stenocarpine, for the reason that there are various species of Gleditschia, which may possibly, each, contain a different alkaloid. By naming these after the several species' names, confusion will be avoided.—ED. AM. DRUGG.

[†] We should have supposed that it was so called because it is so very apt to "tear" the "blankets" and other tearable articles of ranchmen, cowboys, etc., etc.—ED. AM. DR.

*any*, part of the country, would the discoverer point out the exact locality and state details of process by which it was obtained, so as to exclude the possibility that portions of some other plant may have become accidentally mixed with the lot from which the alkaloid was prepared?

5. Is it possible to prepare a compound of one or more alkaloids, obtained from other sources, so that the anæsthetic and other effects of one or more of them are increased or modified in such a manner as to show effects which would not be obtainable from any single constituent?

### Saccharin and its Uses in Pharmacy and Medicine.

THE market has at last been supplied with the first shipments of this new chemical, the extraordinary properties of which had for some time created quite a furore in certain lines of business, as it was anticipated to bring about a sort of revolution in various technical products. It is now within the power of any person to test the properties and capabilities of the substance for himself. We have received one of the first lots that have reached this country, and find our anticipations, in general, realized, with the single exception that we do not regard its sweetening power so extraordinary as was at first stated. It is, indeed, the sweetest substance known to us, and it is capable of imparting a sweet taste to a large bulk of insipid material, as well as of hiding the taste of a considerable amount of bitter material; but the proportion required in either case is considerably larger than has been reported. We are not yet prepared to give exact figures, as we have not made systematic experiments; but such as we have made, for instance, those mentioned below, have convinced us that we are right. Be this as it may, there is no doubt that the new substance is destined to play an important rôle in the arts and in medicine.

From a pamphlet* recently published on the subject we extract the following, which will be of interest to our readers:

Saccharin, or Anhydro-Orthosulphamine-Benzoic Acid, was first brought to the attention of the medical profession in 1885, and though it was then available only in small specimens, yet it at once attracted attention through its remarkable sweetness, which suggested its applicability as a corrigent for bad-tasting medicines. This is now amply confirmed by the fact that regular compounds of saccharin with alkaloids are now available, in which the bitter taste of the latter is materially diminished. It has been found that, in most cases, equal parts of the bitter alkaloid and of saccharin are sufficient to produce a product of a fairly good taste; only in a few cases is an excess of saccharin necessary.

One of the most valuable medicinal uses of saccharin is its employment in diabetes mellitus, not as a remedy, but as a sweetening agent for food. Not being a carbohydrate like sugar, it does not affect the digestive process, and passes out through the urine without change. By means of it, both solid and liquid food prepared for diabetic patients may be agreeably sweetened and rendered palatable.

Saccharin is also likely to be found a serviceable substitute of sugar for all persons inclined to adiposity. And, owing to its antifermentative properties, it will be found valuable as a substitute for sugar in food prepared for patients affected with gastric troubles.

Another useful application of saccharin, internally, can be made in cases where the bladder is in an inflamed or irritated condition, in which cases the urine soon undergoes the ammoniacal fermentation. Here it may be given either in form of beverages, or it may be directly injected into the bladder. It will also be found that an addition of saccharin to urethral injections will prevent the formation of fermentative fungi, without in the least irritating the mucous membrane.

As an addition to preparations for preserving the teeth, saccharin will be found valuable, by improving the taste of these compounds without introducing any substance which might set up a fermentative process.

Finally, saccharin is recommended as an addition to food for infants or convalescent patients, for the same reason which has been mentioned before, namely, its incapability of causing irritation by fermentative action.

Mr. F. Lutze, of Berlin, has made experiments to ascertain the pharmaceutical capabilities of saccharin, and proposes to prepare from it, in the first place, two standard dilutions, one of them a *liquid* and the other a *solid*, which are afterwards to be used as bases for other preparations. The component parts of the two dilutions are respectively:

1. *Solution of Saccharin.*

Saccharin
Diluted Alcohol

of such a strength that 1 gramme of the solution is equivalent, in sweetening power, to 15 grammes of syrup.

2. *Mixture of Saccharin.*

Saccharin
Mannite

of such a strength that 1 gramme of the mixture is equivalent in sweetening power, to 10 grammes of sugar.

*Note of Ed. Am. Drugg.*—The author does not give the proportions for preparing the above-mentioned preparations. We find that when 1 Gm. of saccharin is dissolved in 100 C.c. of diluted alcohol, it requires about 8 C.c. of this solution to impart to plain water approximately the same degree of sweetness (though with a peculiar secondary taste) as is imparted to the same amount of water by 15 Gm. of syrup, with addition of as much diluted alcohol as had been introduced in the first-mentioned solution. In a comparative trial, diluted alcohol must, of course, be added to the syrup solution as well, in order that the difference in taste may be due only to saccharine matter. At the rate mentioned, 0.08 Gm. of saccharin would be about equivalent to 15 Gm. of syrup or to 9.75 Gm. of sugar; this would be a relation of about 1 part of saccharin to 122 parts of sugar. Of course, in a trial of this kind, individual judgment as to degree of sweetness may vary. According to the preceding, it is impossible to make a solution of saccharin in diluted alcohol of such a strength that 1 gramme of it shall correspond to 15 grammes of syrup. If this were possible, then 1 gramme of the dilute alcoholic solution would have to contain 0.08 Gm. of saccharin, which would be a solution of about 1 in 11.5. In reality, however, 1 part of saccharin requires for solution of diluted alcohol (made by mixing equal volumes of 94% alcohol and water) about 80 parts. Of 93% alcohol itself, it requires about 33 parts. Hence it is impossible to prepare a solution of the kind mentioned by the author, even by using pure alcohol as a solvent.

Assuming that our estimate is approximately correct, viz., that 1 part of saccharin is equivalent to about 122 parts of sugar, then the mixture of saccharin may be made by mixing saccharin 8 parts and mannite 92 parts. One gramme of this may then be assumed to be equivalent to 9.75 Gm. (or practically, 10 Gm.) of sugar. Since the taste of the saccharin preparations, however, is not absolutely identical in character with sugar preparations, and there is particularly to be noticed a peculiar, almost irritating, but faint after-taste, it is not so easy to establish a rate of dilution which would be regarded by everybody else as uniform with a certain strength of a sugar preparation. In the present case, we have purposely given only our own *individual* impression, without consulting anybody else's judgment, in order that we may see how far we may differ from others who make the same experiments.

*P. S.*—On repeating the experiment some days later, we are inclined to believe that we have still overrated the sweetening power of the substance; we think that the equivalent of 1 part of saccharin = 122 of sugar is too high. It is more probably 1 = 100.

Mr. F. Lutze gives a number of examples of prescriptions in which the solution and mixture above described are employed as corrigents. But as he does not give the exact strength of his basic solution and mixture, and as we found it impossible to get the saccharin in a sufficiently concentrated solution, such as he pretends to use, we refrain from publishing the formulæ as being practically useless. It will, however, be highly useful to institute a series of experiments in the same direction as those made by Mr. Lutze, in order that the true capabilities of saccharin in pharmacy may be ascertained independent of any secret or proprietary intermediate preparation. Mr. Lutz uses it as a corrigent for quinine, chloral, salicylate of sodium, hydrochloric acid, kousso, rhubarb, compound liquorice powder (the sugar being replaced by the "saccharin mixture") tincture of strophanthus, compound tincture of cinchona, tincture of valerian, solution of acetate of iron, wine of cinchona, of coca, etc., cod-liver oil, castor oil, balsam of copaiba, oleoresin of male fern, extract of cascara sagrada, etc.

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* "Saccharin und Saccharin-Präparate." Fahlberg, List & Co., Saccharin Fabrik; Salbke a. E. (Ausstellung der 60. Versammlung deutscher Naturforscher und Aerzte in Wiesbaden, 15.–24. September 1887). Pamphlet placed at our disposal by Messrs. Lutz & Movius, 15 Warren St., New York, Sole Agents for Saccharin.

## VANILLIN.*

BY CLAY W. HOLMES, ELMIRA, N. Y.

A REPLY to this query seemed at first glance to be quite easy and practical; the effort to make a thorough and satisfactory examination from which facts might be stated as absolute, has proven quite another thing. If this article shall go beyond the scope of the question, as intended by the committee, a desire to ascertain the actual value of vanillin may, perhaps, be a sufficient excuse.

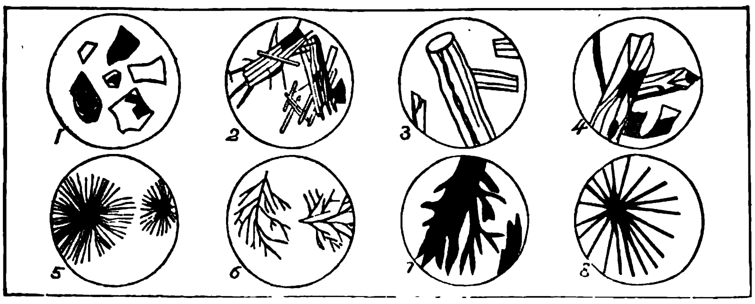
Of samples, two manufactures only could be obtained, which are designated as "Paris," made by Haarman & Reimer, the original inventors, and "American," claimed to be made and largely advertised by an American extract manufacturer. As it is claimed by both manufacturers that 1 ounce of vanillin will do the work of from 40 to 50 ounces of the best vanilla bean, it seemed advisable to prepare samples of various strength. I have therefore made solutions representing from 8 to 48 ounces of bean, as shown in the following table of samples, all of which are based upon the relative working formula of 1 ounce of vanilla bean to 1 pound of menstruum, this being the average strength of the extract ordinarily sold:

1. Vanillin, Paris, representing 1 to 48 ounces vanilla bean.
2. " " " 1 " 24 " " "
3. " " " 1 " 16 " " "
4. " " " 1 " 8 " " "
5. Vanillin, American, " 1 " 48 " " "
6. " " " 1 " 24 " " "
7. " " " 1 " 16 " " "
8. " " No. 2, " 1 " 16 " " "

Duplicates of each of the above marked "A" are colored with caramel.

9. Mexican Vanilla, 1 oz.
10. Coumarin, crude, 1 oz., representing 16 oz. Tonca bean.

As the American manufacturer in all of his advertisements insists that the solution of vanillin must be colored with burned sugar "before tasting or using the extract," I have divided all samples and colored one portion of each. I obtained a sample of crude coumarin, from which a solution, representing 1 ounce to 16 of Tonca bean, was prepared. An extract was also made from the best Mexican vanilla. The samples are before you for examination. Finding the sense of smell very unreliable in my own efforts with so many samples, I will leave you to determine for yourselves the sensible qualities as thus shown, and delineate the results of actual test so far as I have been able to prove them.



1. Crude Coumarin. 2. True Vanilla Crystals. 3. Paris Vanillin. 4. American Vanillin No. 2. 5. True Vanillin, crystallized on slide, from alcoholic solution. 6. Crude Coumarin, crystallized in same manner. 7. Synthetic Coumarin, crystallized in same manner. 8. American Vanillin No. 2, crystallized in same manner.

With the aid of a competent judge, I examined samples Nos. 2, 3, 5, 6, 7, 5A, and 7A at a soda fountain in the following manner: To ½ ounce of simple syrup, in eight clean soda glasses, 5 drops of each sample was added, and about 1 ounce of carbonated water injected from the small draft tube. These mixtures tasted and compared carefully gave the following sensible results:

Nos. 1 and 5 did not have any apparent vanilla taste or odor.

Nos. 2 and 6 gave a vanilla taste, not very decided; a faint odor was perceptible.

Nos. 3 and 7 gave a decided vanilla flavor, pleasant, but lacking the fulness of true vanilla. The odor was quite marked.

Nos. 5A and 7A did not differ from the uncolored samples except in the odor, which was very marked.

As between the two samples, the Paris vanillin seemed to give the most satisfactory results.

From the results of the tests, as given, the writer is forced to acknowledge that vanillin will produce an artificial extract which resembles vanilla, but not of the strength indicated by the manufacturers. When it is used in the ratio of 1 ounce to 1 pound of good vanilla bean, no one could readily recognize the substitution, and the relative values would be equal. Commercially there is quite a variance. The Paris vanillin costs about $5.50 per ounce, the American $12, and a good 8-inch extract bean from $10 to $11 per pound at present market rates.

Desiring to know what resemblance the microscope might show between vanilla and vanillin, but being unable, from pressure of official State work, to enter into this line of investigation, I solicited the aid of my friend, Dr. R. G. Eccles, of Brooklyn, to whom I am indebted for the facts given. Specimens of all samples used in making the solutions were submitted, also some true vanilla crystals and synthetic coumarin. To better illustrate the resemblance existing, the doctor drew some off-hand sketches, without any attempt at mathematical accuracy, but sufficiently characteristic to convey to the mind a proper conception of the appearance when magnified. The illustration given will aid the description, and is a photographic reproduction of the pen sketches. The samples herewith submitted are those from which the specimens were taken. Sketches Nos. 1 to 4 represent the natural condition. Nos. 5 to 8 were first dissolved in alcohol and then allowed to evaporate and crystallize spontaneously on a slide. The result of this examination shows some resemblance between the true vanilla crystals and vanillin. I had suspected the presence of crude coumarin as an admixture in at least one sample (American No. 2), but No. 8 disproves this, unless the coumarin was amorphous in the process of re-crystallization.

You will note, on examining the samples, that the American vanillin No. 1 resembles very closely the Paris, the only difference cognizant to the naked eye being a yellowish tinge in the American, while the Paris is white. American No. 2 has an entirely different appearance. This is much darker, and looks like a mechanical admixture of Paris vanillin and crude coumarin. Both American samples are from the same manufacturer, No. 1 being sent to a druggist on regular order, and No. 2 obtained as a sample direct from the manufacturer.

Both manufacturers claim that vanillin is the aromatic crystalline principle of the vanilla bean existing in the amount of 2 per cent. The American manufacturer asserts that for the last past year he has been buying large quantities of vanilla beans in Mexico and separating the crystals from the bean, "thus avoiding the heavy custom-house duty and other expenses." This probably accounts for the difference in price. The Paris vanillin costs $5.50 per ounce; the American (avoiding the duty?), $12 per ounce. Perhaps he is not aware that vanillas have been for a long time free from duty. The assertion would convey the inference that he bought green beans, or, if cured ones, only the cheaper grades. The fact is that green beans possess no crystals (vanillic acid), and are as devoid of flavor as a Lima bean. The process of curing develops the peculiar flavor which is principally, but not entirely, dependent upon the vanillic acid generated, and unless the "vanillero" be skilful the beans will be rank and the cured bean worthless. It is also true that the vanillic acid or crystals do not form to any appreciable extent except upon the finer grades of vanillas, which indicates that it is not present even to the extent of two per cent, except in fine grade beans. It is also true that a certain amount of the natural oil of the vanilla adheres to the crystals which cannot be separated. This is shown by putting the crystal on paper. Oil will be observed to be distinctly visible. Neither sample of vanillin exhibits anything of an oily appearance. True vanilla crystals are slowly soluble in alcohol, owing to the oil present. Vanillin is dissolved almost instantly. These facts being true, does the reasonable reader suppose that any man can take 3 pounds of good vanilla beans and extract 1 ounce of vanillin at either of the prices named, or at any price? Or is there any intelligent pharmacist who for a moment supposes that either manufacturer makes vanillin from vanilla bean? Is it practical to believe that an extract or chemical principle can be extracted from any substance and be sold for one-third the cost of the material used?

So far as the writer believes or can learn, vanillin is made from either pine cones or from eugenol, the active principle of cloves, and therefore is a substitute for vanilla. If offered to the trade as a substitute, and sold to the consumer as a solution of vanillin without color, the writer has nothing further to say. Let those buy who wish. If offered by any one as the active principle of and obtained from the vanilla bean, I think in the State of New York, at least, the dealer so offering would be violating the food law and be liable. While vanillin is a clever substitute for the true bean, no reputable pharmacist should for a moment attempt to offer a preparation of it for vanilla.

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* Paper read at the Annual Meeting of the Amer. Pharm. Assoc. in Cincinnati. Reply to Query No. 2. Prepare extracts of Vanilla from Vanillin, and compare them to similar preparations from the natural drug.

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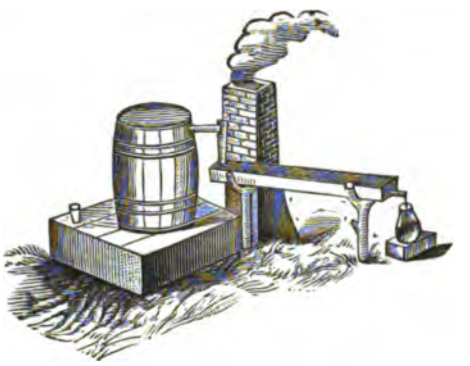
**Postage-Stamp Mucilage** is said to consist of 2 drachms of starch, 1 ounce of white sugar, 2 drachms of gum arabic, and sufficient water. Dissolve the gum, add the sugar and starch, and boil until the starch is cooked.

## HOME-MADE PHARMACEUTICAL APPLIANCES.*

BY CHARLES K. GALLAGHER, WASHINGTON, N. C.

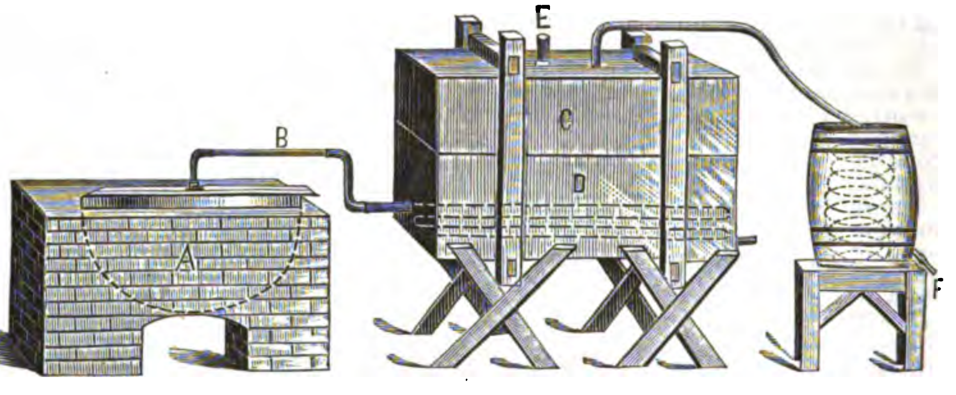
### STILL FOR DISTILLATION OF OIL OF SASSAFRAS, OIL PENNYROYAL, OIL PEPPERMINT, ETC.

A TRENCH is dug in the ground, ending in a chimney. A box with sheet-iron bottom, closed top, and auger hole to introduce water in the top is surmounted by a barrel, which is connected (by an elbow of wood bored out with an auger) to a tin pipe lying in a trough of cold water, which is the condenser. The outfit costs about $10, and nets a profit of about $3 a day. The roots are dug, washed, bruised, and chopped into short pieces and placed in the barrel. Water is introduced into the steamer or box, all the joints luted tight with clay, and fire applied in the trench. The steam passes through auger holes in top of box and bottom of barrel, and is condensed and passes into the receiver with a portion of oil, which is decanted from above or the water drawn off below [or *vice versa*, according as the oil is heavier or lighter than water.]



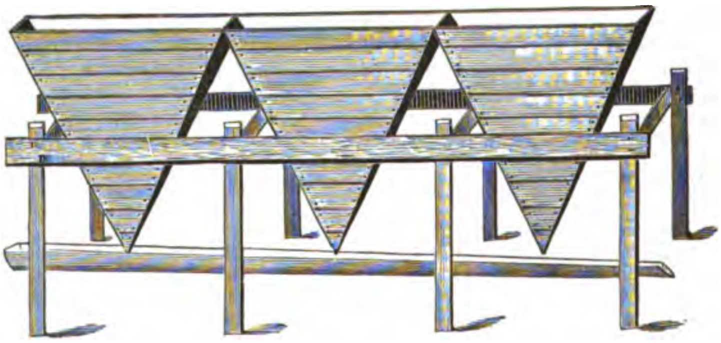
### APPARATUS FOR MAKING ALCOHOL FOR HOSPITAL USE DURING THE CIVIL WAR.

A, ordinary farm boiler or kettle, with iron lid securely bolted on; B, steam-pipe ending in a coil within trough; C, D, two troughs made of gum logs, one inverted over the other, securely luted tight, and fastened together by clamps and wedges. The beer to be distilled was introduced at E, and the opening closed with a plug. The distillate — "low wines" — were collected at F, and redistilled from a set of similar troughs not shown in above figure, and heated by a continuation of the steam coil from D.



### CONFEDERATE APPARATUS FOR MANUFACTURING SALTPETER FOR AMMUNITION.

Any convenient number of percolators, made of rough boards, arranged over a trough after the style of the old-fashioned "lye stand," similar to adjoining figure. Into these was placed the earth scraped from around old tobacco barns, from under kitchens and smoke-houses. Then water or water and urine was poured upon it until thoroughly leached or exhausted. The percolate was collected in a receptacle and evaporated, the salt redissolved, filtered, again evaporated, and crystallized from the mother water.



## Specific Gravity of Lime-Water.

J. A. WANKLYN'S determination of the specific gravity (1.00235) of lime-water containing 1.334 grammes of calcium oxide per liter, shows that when 1.344 grammes of lime was dissolved in 1001 C.c. of water, the substance contracted to 1 liter.—*Chem. News* and *J. Chem. Soc.*

## Ice Poultice.

SPREAD a layer of linseed meal three-fourths of an inch deep on a cloth of proper size, and put pieces of ice the size of a marble on the meal at intervals of an inch; then sprinkle lightly with the meal, cover with a cloth and turn over the edges: apply the thick surface to the skin. The meal protects the skin and excludes the air from the ice, thus preventing melting.—*Chem. and Drugg.*

## Opium in China.

IN the course of a journey through Manchuria, Mr. H. E. M. James, of the Bombay Civil Service, noticed that the opium poppy grows luxuriantly in that part of China, and that the native-grown opium had there almost completely displaced the Indian drug. The imports of the latter into Manchuria amounted to £572,000 in the year 1866, but in 1885 to only £31,300. Opium is grown not only for local consumption, but for distribution in parts of Northern and Central China. The taste for Indian opium is disappearing in favor of the home article, and now that the Che-foo Convention has come into force, and has in fact, though perhaps not in name, imposed an additional duty on the Indian article, it is almost safe to prophesy that in a short time the Indian trade will be seriously affected, and the use of the Indian drug will be confined to a few wealthy *gourmets*.

Mr. James further remarks that he can only remember meeting two persons who had ruined themselves in health by smoking opium, and that some experienced foreigners whom he met were of opinion that, taken in moderation, on a full stomach, it is no worse than tobacco.—After *Pharm. Journal.*

## Iodoform and Bromoform.

MOST of the methods given in text-books for the preparation of bromoform yield either none of that compound or very little.

Methyl alcohol, under the action of alkali and bromine, gives no bromoform unless the alcohol be impure, formic acid being obtained.

Ethyl alcohol, under the same conditions, gives acetic acid. If, however, the compound analogous to bleaching powder is prepared with bromine and milk of lime, this, when heated with ethyl alcohol and then distilled, gives bromoform. The best raw material is acetone. This, when mixed with ten times its weight of a 20-per-cent soda solution heated at 50°, and treated with bromine in the smallest possible portions at a time, gives a yield of 81 per cent of the theoretical amount of bromoform. The process goes quietly, but lasts for some days. Caustic alkali in the place of the carbonate accelerates the process, but the yield falls to 62.5 per cent. Acetaldehyde in presence of alkali and bromine gives no bromoform. Anhydrous aldehyde under the action of bromine gives as one product a substance having the empirical formula $C_4H_7BrO_2$, but whose constitution is quite uncertain; when heated with aqueous alkalies it yields bromoform and what seems to be a true resin.

*Iodoform.*—Alcohol containing from 20 to 25 per cent aldehyde is the most suitable raw material for the production of this compound. It is mixed with ten times its weight of soda solution, iodine is added, and the mixture stirred round from time to time; the iodoform gradually and quietly separates out. The process is completed in the cold. Some sodium iodide may be added with advantage, to increase the solubility of the iodine.

As by-product, sodium iodide nearly free from iodate is obtained.—F. GUNTHER, in *Arch. d. Pharm.* and *Journ. Chem. Soc.*

## Antifebrin in Epilepsy.

ACCORDING to Prof. Bartholow, physiological and clinical observations demonstrate the efficiency of antifebrin in epilepsy, where there is a slow, feeble circulation, as seen by retinal examinations. Doses of 3 grains per day will usually suffice.—*Coll. and Clin. Rec.* and *Am. J. Ph.*

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* Papers read at the Annual Meeting of the Amer. Pharm. Assoc., in Cincinnati.

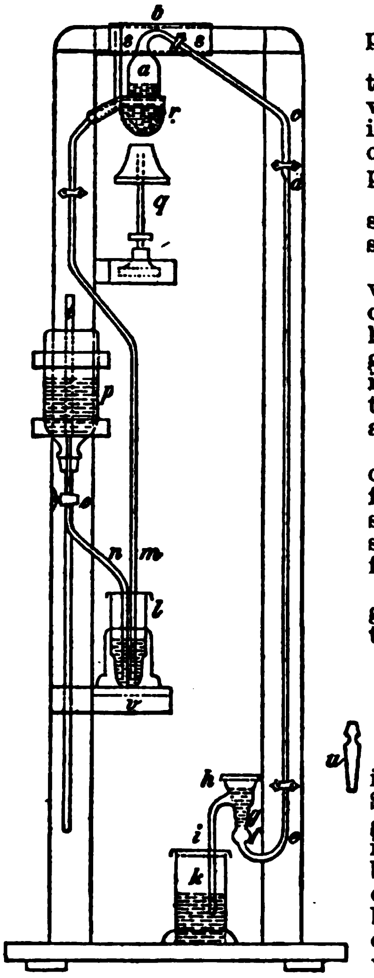
## DISTILLATION OF MERCURY IN VACUO.

The apparatus here described has been devised by B. Nebel for the purpose of distilling mercury in vacuo, an operation which is often rendered necessary when it is required to remove non-volatile metals from mercury.

Upon a firmly constructed wooden frame, the glass apparatus *m, a, c, g, h*, consisting of *one* piece, is securely fastened. The tube *m*, as well as the tube *b c d*, have a diameter of 6.5 millimeters and the former (*m*) connects with a sort of retort *a* of 4.2 centimeters in diameter and 9.5 centimeters in length. From the neck of this, the tube *c* curves down to a sort of pipe-bowl from the upper portion of which descends a tube *h*, substantially as shown in the cut. The globular expansion *f* has a diameter of 15 millimeters, and the ground neck at *g* a length of 33 millimeters. A hollow stop-cock *u* fits accurately with this ground neck.

A strong bottle *p* serves as a receptacle for the mercury that is to be distilled, and this receptacle or reservoir may at any time be detached and refilled without interfering with the operation. At *l* is an intermediate glass-vessel, 11 centimeters long, 4.6 cm. wide above, and 2. 9 cm. below, sitting in a wooden foot. Both the flask *p* and the vessel *l* may be adjusted in height along the left upright. The adjustment should be made so that the end of the tube *n* stands about 2 or 3 centimeters above the end of the tube *m*. The retort *a* is surrounded at its lower half with asbestos and wire gauze, and the upper part of the frame, at *b*, is likewise protected from charring by asbestos.

When the apparatus is started, the stopcock *o* is opened until the vessel *l* is partly filled with mercury. The stopper *u* having been inserted in the neck *g*, its upper end is connected by means of stout rubber-tubing with the exhaust pump, until the mercury in *l* rises into the retort *a* and fills the latter about one-half. The flame of the Bunsen burner *q* having been ignited, distillation will commence after a while, and while it is going on, the exhaust pump (or filter pump) is kept going. As soon as the bulb *f*, however, has become filled with distilled mercury, the pump may be dispensed with. The stopper *u* may, therefore, be withdrawn, but this should be done quite slowly and gradually. As the operation proceeds, the distilled mercury will rise higher in the bowl *g*, until it finally flows off through the lateral tube *h*. From this time on the apparatus may be kept constantly going, without interruption, all that is necessary being to replenish the reservoir *p*. The stop-cock *o* is only opened when the vessel *l* is to be refilled.—*Chem. Centralbl.*



Nebel's apparatus for distilling mercury.

### Salol in Bowel Complaints.

Dr. Goelet, of New York, speaking of the use of salol in the intestinal disorders of children, says:

While the adult dose is ten grains, the dose is much larger in proportion with children, and varies very considerably with the age. For a child six months old or under, the dose is half a grain every two hours. From seven to ten months old, the dose may be from one-half to three-quarters to one grain, according to the severity of the symptoms and the strength of the child. A child one year old may be given from a grain to a grain and a half, according to the severity of the symptoms. A child fifteen to eighteen months old may take a grain and a half to two grains. At the age of two years the dose would be two grains. For three years of age, the dose would still be two grains to two grains and a half. Children of four years would require only two and a half to three grains, and those of five to six years would require only three or three and a half grains. And from this age to ten it is seldom necessary to give more than five grains. It is always given to commence with every two hours, and as the symptoms are relieved the interval is lengthened to three or four hours. As in the first case, I sometimes give it three or four times a day for twenty-four or forty-eight hours after the subsidence of the trouble.

The application of salol in bowel complaints is very extensive. I have used it in all with the same pronounced success. In typhoid fever, every three hours, there is nothing better. While I cannot say that it shortens the attack, it relieves the excessively disagreeable odor of the feces and the tenesmus and flatulence produced by the accumulation of wind in the colon.

* * *

**Himrod's Asthma Cure** is said to consist of equal parts of lobelia, stramonium, and tea leaves, with some nitrate of potash and a little fennel or anise.

### The Chemistry of Strophanthus.

Professor T. R. Fraser, F.R.S., has now made a complete chemical examination of the various parts of *Strophanthus hispidus*, and has given a brief account of his results to the Royal Society of Edinburgh. The paper is printed in the *British Medical Journal* of July 23d. It will be recollected that Professor Fraser, in his first (1870) accounts of strophanthus, stated that its active principle was a crystallizable glucoside—strophanthin. Hardy and Gallois, a few years later, also separated a crystalline body from the seeds, which they took to be strophanthin, but they were unable to confirm Fraser's statement that it is a glucoside. Lately, various chemists have examined the seeds, and have failed to obtain strophanthin in a crystalline form. Professor Fraser's paper explains why this is so. The seeds which he first examined, also those obtained from Mr. Buchanan, of Blantyre, in 1881, yielded crystallized strophanthin; but from "seeds obtained from Mr. Buchanan in 1885, and also from seeds liberally placed at his disposal by Mr. Moir and by Messrs. Burroughs and Wellcome last year, he failed to obtain an equally definite crystalline body." The crystals formerly obtained were re-examined, and were found to be resolvable by acetate of lead into an active glucoside and a peculiar acid, for which the term *kombic acid* is suggested.

The following is the method for preparing pure strophanthin:

Starting with the product obtained in the earlier process, it is dissolved in water, tannic acid is added, the tannate is digested with recently precipitated oxide of lead, and then with rectified and proof spirit.

The extract obtained is dissolved in a small quantity of rectified spirit, and the solution is precipitated by ether.

The precipitate is finally dissolved in weak alcohol, and through this solution carbonic acid gas is passed for several hours, by which means lead is completely got rid of. After filtration, the solution is evaporated at a low temperature, and the residue dried *iu vacuo* over sulphuric acid.

The residue, which is strophanthin, becomes white and does not crystallize perfectly. It is neutral or faintly acid, quite soluble in water, slightly in rectified spirit, and insoluble in ether and chloroform.

The average of several combustions gave the following percentage composition:

$$\left.\begin{array}{l} C = 55.976 \\ H = \phantom{0}7.754 \\ O = 36.288 \end{array}\right\} = C_{20}H_{34}O_{10}$$

The following are the most characteristic color reactions of the substance: Strong sulphuric acid produces a bright green color, which soon becomes greenish-yellow and brown; sulphuric acid and bichromate of potash, in addition to the changes produced by sulphuric acid, a blue color; phosphomolybdic acid, after contact for a few hours, a bluish-green which, on the addition of a few drops of water, becomes pure blue; nitric and hydrochloric acid, and caustic potash, ammonia, and other alkalies, all give yellowish colorations. With a one-per-cent solution in water, phosphomolybdic acid causes somewhat slowly a bright green color which, after prolonged contact becomes greenish-blue; nitrate of silver, a reddish-brown color and a slight dark precipitate; and tannic acid an abundant white precipitate, soluble in excess both of strophanthin and of tannic acid. Nearly all acid reagents cause the solution to become slightly hazy, and it is then found that the solution contains glucose. This decomposition is also produced by sulphuretted hydrogen, more distinctly and rapidly after gentle heating, and for this reason it is not advisable to use sulphuretted hydrogen in any process for preparing strophanthin.

The change last noted appears to be caused by all mineral acids except carbonic acid, and by some organic acids. Even a solution of strophanthin is changed in the course of a few hours by as little as 1.5 per cent of sulphuric acid. There separates a crystalline substance (strophanthidin), which Hardy and Gallois mistook for strophanthin.

The decomposition takes some time to complete, and is accompanied by liberation of glucose, the presence of which in the decomposed solution was proved by fermentation with yeast, as well as by other methods.—After *Chem. and Drugg.*

* * *

Solution of sodium sulphite is said to remove iodine stains.

### The Proximate Principles of Trillium (Beth-Root).*

THE author is aware of the fact that the drug, as it occurs in the market, is derived from more than one species of Trillium. Still, as the Trillium erectum is probably the one which has most frequently been the basis of experiments and pharmaceutical preparations, he devoted his attention to the root of Trillium erectum, though he had to rely, for the supply of this, upon the good faith of a dealer.

The powdered drug, when dried at 100° C., lost 6 per cent, due to retained moisture.

On exhausting the powdered drug with petroleum ether boiling at 45° C., this solvent yielded 8.2 per cent of a viscid *oil*, of a reddish color, completely soluble in alcohol (from absolute down to 90 per cent), ether, and chloroform. It is readily saponified by potassa, producing a soap soluble in water and alcohol, and yielding nothing to ether, chloroform, or petroleum ether.

The powder, after being dried, was then exhausted with stronger ether, when it yielded 4.8% of a reddish body, insoluble in water and petroleum ether, but soluble in alcohol. This turned out to be a *resin*, soluble in potassa.

Next, the powder was macerated with alcohol. This extracted 18.9% of *extractive matter*, which yielded to chloroform—but not to petroleum ether or to benzol—a white amorphous powder, at first of a bitter, and afterwards a sweetish taste, turning red with hydrochloric and purple with sulphuric acid, insoluble in ether, and producing a foam upon agitation with water in which its soluble. These properties lead the author to believe that it may be identical with *convallamarin*, to which the drug may owe its bitter taste and emetic action. This was the only *glucoside* which could be detected in the root. Alkaloids were also proven to be absent.

The powder having been dried at 40° C., it was macerated with distilled water. From the aqueous solution, alcohol precipitated *gum* (vegetable mucilage), the percentage being 0.21. The filtrate from this, when evaporated at 70° C. to a syrup and mixed with absolute alcohol, yielded another small quantity of the above glucoside.

The root was also found to contain starch.

A volatile oil—which had been assumed to be present in the root by former experimenters—could not be discovered. The author also failed to find any volatile acids or alkaloids. But a portion of the last aqueous macerate showed the presence of an *organic acid*, which was obtained in too small a proportion to be examined.

The ash amounted to 2.3 per cent, and consisted chiefly of the carbonates of sodium and potassium and traces of nitrates.

### Copper in Extracts.

D. P. SHULER, of Ann Arbor, reports in the *Pharmaceutical Era*, for October, the results of an examination of a number of extracts with a view to determining the presence of copper to an injurious extent. The articles examined embraced extracts of taraxacum, gentian, damiana, cannabis, buchu, digitalis, hyoscyamus, belladonna, podophyllum, aconite, hops, nux vomica, ignatia, and ergotine.

None of the extracts, except the two of cannabis, that of hops, and the "digitalin" concentration, gave coatings heavy enough to indicate more than one part of copper in from 50,000 to 100,000 parts of extract; and those above mentioned showed a coating of copper on the foil by Cresti's method (*Zeitsch. f. anal. Chem.*, 16, 474). This method is as follows: To the slightly acidulated solution add a small strip of platinum foil and a piece of granulated zinc (the latter resting on the former), and leave them in the liquid for several hours. Then remove the platinum foil and expose it for a few seconds to the fumes of bromine and of hydrobromic acid obtained by heating solid potassium bromide with concentrated sulphuric acid, when, if copper be present, a violet to a purple color will be observed, due to solution of the cupric bromide in hydrobromic acid.

In the sample of cannabis which showed the largest proportion of copper, an attempt at quantitative analysis failed. It certainly gave no more decided reaction than was obtained from a known solution of 1 milligramme of copper sulphate per cubic centimeter of solution.

It was the opinion of Mr. Shuler that extracts do *not* contain copper to an injurious extent.

### Syrup of Althæa.

THE Pharmacopœia Committee of the German Pharmaceutical Association recommends the following formula for the production of a *clear* and stable syrup of althæa:

| | |
|---|---|
| Althæa Root, cut | 10 parts. |
| Alcohol | 5 " |
| Water | a sufficient quantity. |
| Sugar | 800 parts. |

Wash the althæa root *thoroughly* with water, then macerate it for three hours in a mixture of 5 parts of alcohol and 250 parts of water, with repeated stirring. Strain the liquid without pressure, and in 200 parts of the strained liquid dissolve the sugar at a gentle heat. [Then raise it once to boiling, and transfer the syrup to small vials, which should be completely filled, well corked, and kept in a cool place.]

The Committee attaches the following note. In order to obtain a very clear and stable syrup of althæa, it is important to thoroughly wash the roots previous to maceration. The best way is to rub them strongly with the hand; the strained liquid will then be entirely clear, and will not deposit a sediment even when standing for some time. It has been proposed to allow the strained liquid to stand in a closed or covered vessel during twelve hours, and to filter afterwards; but this does not promote the clear condition of the liquid. Any delay caused by setting the liquid aside induces the beginning of a change, involving the generation of ammonia, and, later on, of products of fermentation. Experience has shown that only by at once converting the filtered liquid into syrup, and raising to a boil, can a stable syrup of althæa be produced. The small amount of alcohol present is valueless as a preservative agent. Yet as it causes the extract to have a lighter color, it may remain. If a little citric acid were added to the strained liquid, instead of using alcohol for maceration, the liquid would be still lighter in color, as well as clearer.—After *Arch. d. Pharm.*, 225, 708.

### Means of Preventing Foaming in Boiling Liquids.

ACCORDING to Hermann Kunz, the best method of preventing foaming in boiling liquids is to introduce a small fragment of paraffin, which will melt upon the surface, and, by its power of equalizing the surface and preventing the formation of waves, counteract the tendency to foam. It is not at all necessary to use enough paraffin to cover the whole surface of the liquid. It is sufficient to add such a quantity that it will form a narrow ring at the edge of the liquid. It will then keep on boiling quietly and without foam within that ring.—After *Arch. d. Pharm.*

Other authors have recommended for the same purpose some fat or fatty acid. It will, of course, depend upon the nature of the boiling liquid which of these several substances should be taken.

### Means of Preventing Foaming in Cold Liquids.

IN connection with the preceding note, it will be useful to recall a few methods for preventing foaming under other circumstances. During the assay of urine for urea, for instance, it usually happens, if the urine is albuminous or has become alkaline, that the decomposition with an alkaline hypobromite produces such a copious foam that the volume of gas generated cannot be read off for a long time. According to Méhu, this is best prevented by introducing into the measuring burette a minute pellet of lard (or some other fat).

When foam forms on the surface of some liquid, as, for instance, on the surface of a column of volumetric solution inside of a burette, or on the surface of liquid in a bottle, a very easy way of causing it to vanish is to allow some vapor of ether to fall upon it, by holding a bottle containing the latter in an inclined position over it.

### Morphine Phthalate.

"KING of the Morphine Salts" is the modest claim put forward br Mr. Bombelon on behalf of morphine phthalate (*Pharm. Zeit.*, Aug. 27th, p. 488), as being free from the defects of the compounds of the alkaloid with the mineral acids and with acetic acids, and especially suitable for subcutaneous injection. Morphine phthalate being non-crystalline, it requires to be prepared with very pure material, and with this object, Mr. Bombelon recommends that the alkaloid should be obtained first by precipitating pure morphine hydrochlorate with caustic ammonia, washing and pressing the precipitate, dissolving it in acetic acid, and then again precipitating, washing, and pressing it. This pure morphine should be added to a hot solution of phthalic acid, in which it is very soluble, as long as none remains undissolved, and the solution, after cooling, filtered and evaporated finally upon glass. The handsome glassy scales thus obtained are described as being very soluble, the salt only requiring about 5 parts of water; the preparation therefore allows of the use of very strong solutions of the alkaloid.

Dilute solutions are said to remain unaltered and without fungoid growth. Mr. Bombelon states that phthalic acid forms with other alkaloids salts that are very soluble and permanent.—After *Pharm. Journal.*

### Removal of Ink Stains.

SOLUTION of chlorinated lime, one ounce, with two drops of acetic acid is used in many offices to remove ink from paper or parchment. Apply a drop of solution to the writing without rubbing; when the ink has disappeared the fluid is taken up with a blotter.

The same fluid may be used for lace and other white goods.—*Chem. and Drugg.*

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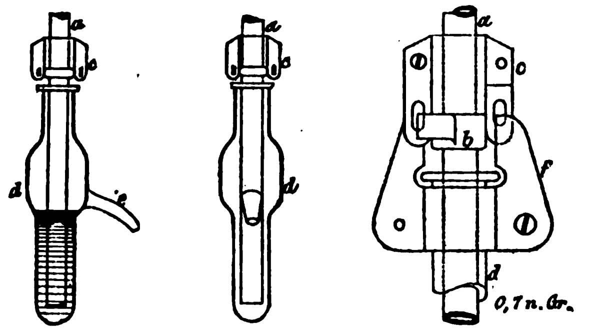
* Abstract of a thesis presented to the Massachusetts College of Pharmacy by D. J. Prendergast, 1887.

### MERCURY JOINT FOR DELICATE REAGENTS.

Certain reagents, such as solutions of stannous chloride, caustic baryta, ferrous sulphate, etc., are so prone to be affected by the air, that it is considered practically impossible to keep them without spoiling. A novel device, recently proposed by C. Reinhardt, however, bids fair to do away with this drawback. He proposes to keep them, as usual, in reservoirs (large glass bottles), and to draw them from the latter by means of a permanently fixed glass siphon tube. But, instead of providing the end of the latter either with a glass stop-cock or with a rubber tube and pinch-cock, he causes the end of the tube to dip into mercury when it is to be kept closed. The mercury is contained in a glass vessel with a spout at the side, of the form shown in Fig. 1. The shaded portion represents the mercury into which the siphon tube dips. The glass vessel holding the mercury is held in position by means of a catch *f* engaging the rim of the glass vessel *d*. The catch itself revolves around a collar applied to a shoulder blown on the glass tube. When the glass vessel *d* is turned through an angle of 90°, so as to arrive from the position shown in Fig. 1 to that of Fig. 2, the catch *f* arrives over notches in the collar, and may be pushed down. As soon as the outlet of the siphon tube emerges from the mercury, the liquid begins to flow through the spout *e* and the flow may be stopped at once by pushing the vessel *d* up again. —After *Dingler's Pol. Journ.*, 264, 83.

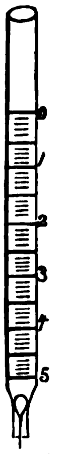
Fig. 1. Fig. 2. Fig. 3.



Reinhardt's mercury joint.

### GRADUATED PIPETTE FOR BROMINE.

A. Simon recommends to use, for bromine, a graduated pipette, the lower orifice of which is closed by a small hollow glass bead, containing a drop of mercury (to make it heavy) and drawn out to a point which passes through the orifice of the pipette. The bromine is best kept below a sufficiently deep layer of water. When some of it is to be withdrawn, the pipette is immersed into the vessel to the bottom, so that the slender stem of the glass bead is lifted up, whereupon bromine will rise in the pipette, or it may be drawn up in the latter by suction. It may then be lifted out, and when it is to be emptied, this is accomplished in the same manner.—*Arch. d. Pharm.* and *Chem.*, *Centralbl.*, No. 21.



*Note by Ed. Am. Dr.*—If suction is to be used to draw bromine up in the pipette this should under no circumstances be done direct, or by the mouth. Either a rubber bulb and tube should be used; or, if suction by mouth is preferred, the pipette should be connected with an intermediate bottle containing water, and suction be applied to this.

In trying to empty the pipette, when the stock-bottle contains a rather high column of bromine, it will be found that the contents of the pipette will refuse to flow out, being counterbalanced by the surrounding bromine. It is preferable to insert, together with the pipette, a thin glass rod, one end of which is bent over at a right angle and flattened. The pipette is held so that its orifice is still within the watery column. On gently pushing the flattened end of the bent glass-tube against the stem of the glass-bead, the latter will rise, and allow the whole contents of the pipette to flow out.

### Lime-Juice and Glycerin.

(Inseparable.)

The following formula is given in the *Chem. and Drugg.*

| | |
|---|---|
| Nut-Oil | 16 oz |
| Lime-Water | 12½ oz |
| Powdered Soap | ½ oz |
| Water | 3½ oz |
| Oil of Lemon, | |
| " " Bergamot, of each | q.s. |

Dissolve the soap in the water by the aid of the heat; mix the oil with the lime-water; add the soap solution and the perfume, and mix well. [In this preparation, the title "lime-juice" is certainly misleading.]

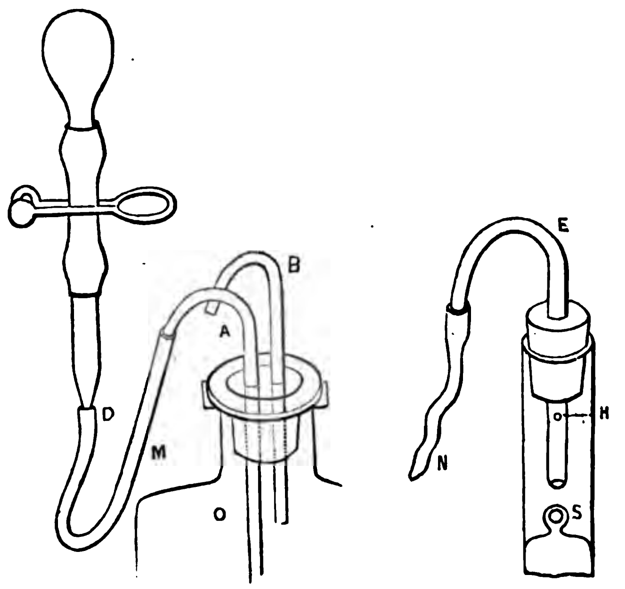
### APPARATUS FOR FILLING A BURETTE.

The difficulty of filling a burette with standard solutions without a material loss of strength from evaporation has suggested to me the following plan: In Fig. A is a glass tube bent as shown and extending to the bottom of the bottle C, containing the standard solution; B is a similar tube extending just beneath the stopper; both tubes are sealed in the bottle after it is filled. A small rubber tube, 30 Cm. or 40 Cm. long, fits at either end on the glass tubes A and B, and remains in this position when the bottle is not in use. When the burette is to be filled, the rubber tube is detached from B and slipped over the top of the burette at D, thus leaving B open for the admission of air when the fluid is drawn from the bottle.

In Fig. 2, E is a bent glass tube fitted by means of a stopper to the top of the burette; it is pierced by a hole H, in the side, just beneath the lower surface of the bottle, and extends about 2 Cm. beyond, being open at each end; a rubber tube is attached to its outer end for the purpose of making suction with the mouth.

The bottle being attached by means of the rubber tube M to the tip of the burette, and the compressor being open, the fluid is drawn, by suction on the tube N, through the tube A, together with some air, into the burette. If a swimmer is not used, the air bubbles will simply rise to the top and give no further trouble. With a swimmer, however, it will be necessary to remove them by drawing the swimmer forcibly against the bottom of the tube E (Fig. 2), when they will pass by the swimmer and escape; if not at the first trial, by allowing the swimmer to recede slightly and repeating the operation, the air will easily pass out; the object of extending E (Fig. 2) beneath the stopper and of the lateral hole in E is to prevent the solution from entering the suction tube N. When the burette is free from bubbles, the fluid may be allowed to recede until the swimmer stands by the mark. The rubber tube M (Fig. 1) is detached from the burette and restored to its place on tube B, thus sealing the bottle against any possible evaporation. The efficiency of the apparatus in preventing loss of strength is evident; in practice I have found this method more speedy than any other I have known.—C. L. Penny in *Am. Chem. Journ.*

Fig. 1. Fig. 2.



Penny's appliances for filling burettes.

### The Uses of Hydrogen Peroxide.

Mr. John G. Benedict, in a thesis submitted to the Massachusetts College of Pharmacy, gives a very comprehensive résumé of the literation of hydrogen peroxide, in which it is stated that the substance was introduced to common use in 1870 as a hair bleacher; its value as a bleaching agent for animal substances being particularly great. As a germicide it also rates high. As a medicinal agent it was first proposed by Dr. B. W. Richardson in 1858. In May of the same year, Dr. W. B. Clark, of Indianapolis, published in the *Medical Era* his experience with it in a number of diseases, and Dr. W. A. Blackman, of Brooklyn, N. Y., read a similar paper before the New York Society for Medico-Scientific Investigation in July, 1866. Both of these authors spoke of its influence in destroying pus, and its curative influence in purulent ophthalmia, suppurative otitis media, gonorrhœa and leucorrhœa. Pean, a French surgeon, used it as a spray in ovariotomy. Dr. Day, of Australia (*Lancet*, January 11th, 1868), used an ethereal solution in a case of diabetes, which recovered. It is recommended in cases of septic dyspepsia and carious teeth. It is rated as 60 times more powerful as a bactericide than carbolic acid; 20 times as powerful as salicylic acid, and 40 per cent more potent than corrosive sublimate.

## Semi-Annual Report on Commercial Drugs and Chemicals.

[From Gehe & Co.'s Handelsbericht for September, 1887.]

*Adonis æstivalis*—has been repeatedly asked for as a substitute for *Adonis vernalis*. It is said to be more powerful in its effects than the latter.

*Amylene Hydrate.*—This new hypnotic, which is also known as dimethyl-ethyl-carbinol, or tertiary amylic alcohol, is reported to have this advantage over chloral, that it does not affect the action of the heart, and over paraldehyde, that it acts in smaller quantity and without the disagreeable odor which the latter imparts to the breath. The dose is 3.5 to 5 grammes, dissolved in sweetened water.

*Antifebrin*—or rather, acetanilide, is being used in very large quantity, its consumption amounting to twice that of antipyrin, which is probably due to the fact that, as an antipyretic, it is the cheapest agent so far rendered available. Gehe & Co. express their regret—as we have done on several occasions before—that the article has been introduced into medicine under a copyrighted name, and they strongly advise physicians to prescribe it under its proper chemical name "Acetanilide."

*Antipyrine.*—The extensive applicability of this preparation, at first only valued for its antipyretic properties, insures to it its permanent place among the most important drugs. We have already drawn attention to the experiments of Prof. Germain Sée, who found antipyrine to be a most effective anodyne in rheumatic and gouty affections, sciatica, and similar troubles. It is said in these cases to be an efficient substitute for morphine, and as it is quite soluble in water may be easily administered in hypodermic solution. The dose, for this purpose, is 0.5 Gm. (ab. 8 grains); internally administered, the dose is 2 Gm. (ab. 30 grains).

*Bismuth Salts.*—Aside from the subnitrate, the most frequently used salt of bismuth, in Gehe & Co.'s experience, is at present the salicylate.

*Bromide of Ethyl*—is coming again into more extended use. When pure, it possesses an agreeable, aromatic odor, recalling that of chloroform; it is neutral, and indifferent towards sulphuric acid. Its specific gravity varies between 1.390 and 1.460, according as it may contain more or less alcohol. It seems that the preference is given to that which contains more alcohol, and has a specific gravity 1.390, since this has better keeping qualities.

*Calcium Phosphate*- is being introduced [we should have said re-introduced, Ed. Am. Dr.] as a remedy in phthisis. Rebory recommends the tribasic salt $Ca_3(PO_4)_2$ as efficient to allay perspiration in consumptives. He gives it in quantities of 4 to 8 to 15 Gm. (1 ʒ-2 ʒ-4 ʒ) daily, mixed with water and a little hydrochloric acid. It is said to stimulate the appetite, to improve digestion, to increase the bodily vigor, and to be easily borne by the stomach for some time. Drs. Kohlischer and Freund use the calcium phosphate in the treatment of local tuberculosis. They employ for this purpose solutions containing about 7 per cent, with about 0.25 per cent of free phosphoric acid, in form of injections. and similar solutions with 2.5 to 3.5 per cent of free phosphoric acid for the impregnation of gauze.

*Cinchona Bark.*—Since last March, the market of bark has pursued a downward tendency. When Ceylon barks had been quoted, in September of 1886, at 3 pence per unit, and sulphate of quinine at 1*s.* 10*d.* per ounce, it was supposed that the lowest possible limit had been reached. Reduced shipments from Colombo, indeed, caused a slight reaction, but when the export had again reached, during March, the figure of the previous year, the price began to decline again and fell to a lower point than had ever been supposed to be possible. Since June, however, the exports from Ceylon have again slightly diminished, and the condition of the London market, compared with that of the preceding two years, appears to be favorable to an improvement in this article. Nevertheless, there is a continued depression and downward tendency. Possibly this is due to the fact that the apparent reduced exportation of Ceylon barks is offset by increased shipments of Java bark, which is, moreover, much richer in alkaloid than the former.

The exports from Java are reported as follows:

| July 1st | | May 31st | Dutch Pounds |
|---|---|---|---|
| 1883 | to | 1884 | 1,038,934 |
| 1884 | " | 1885 | 1,083,555 |
| 1885 | " | 1886 | 1,404,815 |
| 1886 | " | 1887 | 2,054,044 |

South American barks continue to be of secondary importance. It is doubtful whether the newly started plantations in Bolivia will soon appear as rivals on the market, in view of the generally depressed condition of the value of bark. And the plantations started in many other localities will no doubt have to suffer from the same cause.

*Cantharides.*—Two new Chinese varieties of cantharides have made their appearance in the London market. They have been indentified as *Lytta Gorhami* and *Huerbys sanguinensis*. According to Mr. Moss, however, these insects only produce a sort of inflammation upon the skin, but no real blister. In this connection, Gehe & Co., report the recent appearance, at Trenton, N. J., of an insect, which is not only injurious to the vegetation, but also exerts a blistering action upon the human skin, similar to that of the Spanish fly. [We expect to receive a report on this subject at a later date.—Ed. Am. Dr.] A large number of persons in Trenton are reported to have suffered from blisters caused by these insects.

*Codeine.*—Whether the new patented process for preparing codeine synthetically is really in operation or not, does not appear to be quite clear. Gehe & Co. have no more information about it than it is contained in the patent specifications; and our efforts to learn more about it have likewise remained fruitless up to the present time.

*Convallaria Flowers.*—The consumption of these appears to have considerably diminished.

*Coca Leaves.*—The importation of this bulky drug has been very much reduced, since crude cocaine, prepared in South America, is obtainable in large quantities and of improved quality. Green Bolivia leaves begin to be scarce, and Peruvian and Truxillo leaves are held at a considerably advanced price.

*Duboisine.*—Heretofore this alkoloid appeared in the market in form of a syrup. Ladenburg identified it as *hyoscine*. Gehe & Co. now bring it in the market in form of a microcrystalline powder.

*Ergot.*—Though the Russian harvest of ergot has been very small during the past year, this appears to have been offset by the greater activity of the ergot—according to a report of Professor Kobert, of Dorpat—since a large number of persons were very seriously affected (one even fatally) with ergotism in a single village. It is quite certain that the quality of ergot varies considerably in different years, or according to localities, and often depends upon uncontrollable factors, such as heat and moisture. The method of *keeping* is likewise of great importance. Prof. Kobert found samples, which he had kept since 1884, to be entirely inert. [This is nothing new to us, who have a much more extended experience in this country with ergot than our European confrères.] Prof. Lasarski has recently published the results of many years' study of ergot, among which he announces the fact that ergot is of the greatest intensity a certain time "*before* the harvest." [That is to say, before the rye is ripe and ready to be harvested.] During the time of harvest it is already in its decline, and later on still more so. Looked at from the standpoint of the dealer, ergot is the most unreliable article known to the trade, since the percentage of the real active principles, Kobert's *cornutine* and *sphacelic acid*, not only varies in the drug when freshly collected, but disappears entirely by long keeping. It is, therefore, a good thing for the trade that the majority of physicians still considers the percentage of *sclerotic acid* as the decisive criterion, which principle is present even in the poorest grades of ergot. [This is an important statement of Gehe & Co., and betrays a very commendable spirit of honesty and liberality, rather seldom met with nowadays among wholesale dealers of drugs, who are often glad to withhold from their customers the means by which poor drugs may be recognized.]

*Ether.*—More attention is recently paid to tests of purity for ether, since it has been shown by Dr. Vulpius that an ether may have the specific gravity 0.722 and may, nevertheless, be contaminated with heavy oil of wine. Medical authorities claim that such an ether does not possess full narcotic powers, as the excitant properties of the heavy oil of wine counteract the effects of ether. Another, though less important feature is a peculiar property of some kinds of ether which causes the development of a yellow color with solutions of iodides. It is supposed to be due to the formation or presence of peroxide of hydrogen. There seems to be no other way to guard against this except to keep the ether most carefully from contact with light and air.

*Guarana*—maintained its high price, and was obtainable only in small lots. Its consumption in Brazil is known to be very large, and aside from the quantity which the wild-growing plants of the Amazon district furnish to the indolent inhabitants of the equatorial region, the plant is found in larger quantity only in the districts of Mané, Villa Bella, and Imperatrix. It requires a somewhat dry, loose, clayey soil and prefers an inclined plane like the vine. The seeds are planted in furrows, and when the plants have attained a height of 15 to 20 centimeters, they are transplanted. Some place the seeds in small baskets filled with earth; when the young plant is about 10 centimeters high, it is put, together with the basket, in the designated furrow. When finally located, the plants are 6 to 8 meters (18 to 24 feet) distant from each other, and are trained up along trellis-work. Much care is required for the cultivation, since it requires from three to four years to obtain a crop. The shrub flowers in July, and the fruits ripen in November and December. After fruiting, the plant must be pruned every year. The whole treatment, in fact, much resembles that of the vine, except that a tropical climate is requisite for its success. According to the statement of planters, a shrub will yield a good harvest during more than forty years, each plant yielding between 3 and 4 kilos of guarana.

*Gum Arabic.*—The hoped-for return of an orderly condition of things in the Soudan is still a pious wish, and the late Italian blockade of the Massowa coast has even destroyed the hope of obtaining genuine gum arabic by this route. Reports from Khartum are said to have reached the coast that the stock on hand in Upper Egypt is but scant, since but little gum had been collected, and this had been used by the inhabitants as food. Hence, even should commercial intercourse be re-established with the Soudan, it is useless to at once expect large supplies of gum arabic. Meanwhile, all the stock of this article available in the markets of the world, with the exception of small reserved quantities, may be regarded as exhausted. It will, therefore, be necessary to fall back upon Gezireh gum, which may be had, if carefully selected, in quality sufficiently serviceable for medicinal purposes, though likewise at high prices. During the first half of the present year 4,354 seroons of this gum reached Trieste; but of this quantity only 278 seroons remained in stock on July 1st, without immediate expectation of fresh supplies. The various substitutes, gums of East Indian, Australian, and other origin, have stiffened in price, and their available supplies are likewise smaller than at the same time during the preceding year. Senegal gum has also become dearer. It is, however, expected that Galam gum will be readily obtainable, as it is said to have been harvested in large quantities.

*Hydronaphthol.*—Gehe & Co. state that the sample of hydronaphthol which has come into their possession has been found to be identical with beta-naphthol. They declare it to be the crude substance, from which the pure beta-naphthol may be obtained by recrystallization and treatment with animal charcoal. The same result may be obtained by cautious sublimation.

*Hydroxylamine Hydrochlorate.*—The strong reducing power of this chemical had been made known already by its discoverer, Lossen. Attention had been directed to it by several writers as being probably a highly effective developer of the invisible image upon the sensitive silver film. But the high price precluded its general introduction. At present, however, there is a prospect of a material reduction, so that its general use in photographic practice may be only a question of time.

*Hyoscine.*—The pure alkaloid is not used in medical practice, only the hydrochloride, hydrobromide, or hydriodide. Which of these is the most suitable is not yet decided. The dose may be assumed to be the same for all, namely, internally, as 0.0002 to 0.001 (or $\frac{1}{300}$ to $\frac{1}{64}$ grain) as a hypnotic for the insane, etc.; in smaller quanquantities, as a simple narcotic.

*Jaborandi Leaves*—have become very scarce, and small lots appearing here and there are found to be too poor to be used for the preparation of the alkaloid, pilocarpine.

*Iodoform.*—The preference appears to be at present given to the light, voluminous kind, while formerly, the heavy, hard crystallized variety was preferred. [This is our experience likewise. See page 218—Ed. Am. Dr.]

*Kefyr*—has been in active demand. Gehe & Co. obtain regular supplies of the ferment from the Caucasus.

*Matico Leaves*—according to Gehe's report, are not obtainable in the European market at all.

*Makassar Oil*—from *Schleichera trijuga* (not to be confounded with the proprietary Makassar Oil, the reputation of which appears to be based upon, or to have been borrowed from that of the genuine oil) seems to be in reality a very efficient and stimulating agent for the scalp, both cleansing it and promoting the growth of hair.

*Oil of Betel*—has reached Europe in somewhat larger quantities. It has been found serviceable in diseases of the fauces and bronchial passages. Mr. Schmitz, apothecary at Samarang, the manufacturer of this oil, regards the active principle as being of the nature of an aldehyde, while Prof. Eykman thinks it belonging to the phenols, and to be probably identical with carvacrol.

*Oil of Petigrains*—of Paraguay production is again in stock, and in quality is said to be equal to the French.

*Oil of Rose.*—The total yield of oil of rose in the Balkan district, during the past summer season, is estimated at 500,000 meticals, or 2,400 kilos, being about 720 kilos in excess of last year. In consequence of this, the price has somewhat receded.

*Oil of Peppermint.*—Gehe & Co.'s report was evidently written before the recent sharp decline in the value of oil of peppermint had culminated. It may, however, be of interest to state that Gehe & Co., who have apparently always quoted H. G. Hotchkiss's oil as the standard, have now also, as an experiment, put in stock some of Todd's oil of peppermint; they add that "this is said to be equal to the before-mentioned, and to have been distinguished by its steady uniformity."

*Opium.*—The anticipation of a diminished crop, during the present season, has been realized. The expected yield for the year 1886 had been 9,000 chests, but it turned out to be only 7,500. This deficiency would already then have produced a permanent upward tendency, if it had not been for considerable stocks remaining over. When it, however, appeared, a little later in this year's season, that the excessive heat considerably diminished the hopes for a satisfactory harvest, prices began to stiffen. Finally, it turned out that the whole crop in Asia Minor amounted to only about 1,500 chests, or including Salonichi, but little over 2,000 chests. On the 26th of August, for instance, only 276 chests arrived at Smyrna, against 1,963 on the same day of the preceding year. Nevertheless, since considerable stocks of opium remained over in London and New York, and consumers were not anxious to buy, the price receded again a trifle. It is even supposed that, in spite of the short crop, there will be no lack of opium, unless speculation should obtain possession of the article. Persian opium is likewise said to have had an inferior crop. If this is confirmed, it will materially influence the value of Smyrna opium.

*Orthosiphon stamineus.*—The leaves of this labiate shrub, indigenous in Java, are there used in diseases of the urinary organs, and are occasionally demanded. In commerce they appear in a rolled form, resembling tea. The leaves are small, oval, and finely toothed; their upper surface is deep green, the lower somewhat lighter green. The branch-veins pass from the central vein to the margin, and follow the latter to the point, where they run together.

*Phosphorus.*—For the use in air-analysis, and for the preparation of organic compounds, Gehe & Co. offer phosphorus in sticks of only 3 millimetres in thickness. This is put up in tin boxes containing ½ kilo or 1 pound. The price is about 2½ times that of ordinary phosphorus.

It would be a great advance, if some manufacturer of phosphorus were to put on the market a product entirely free from arsenic. There is no doubt that many would gladly pay the increased price which such an article would command. Even if it were found that a continued manufacture of such a product would be unremunerative, yet it might be turned out periodically, in proportion as the stock on hand diminishes. The maker could make his own price, with ample profit, and still be assured of a sale of the article.

*Pyrogallic Acid.*—This acid is principally consumed in photography and to a smaller extent in medicine. In future its use is likely to be somewhat restricted, since it is announced that the *hydrochlorate of hydroxylamine* promises to replace pyrogallic acid and oxalate of iron as a developer in photography.

*Quinine.*—The extraordinarily large stocks of bark available—to manufacturers—have strangled all spirit of speculation, so much so that even the lowest conceivable offers could not produce any enlivening effect upon the market. Besides, the interest in quinine has been materially lowered by the advent of the several new antifebrile remedies recently introduced. European markets have a tendency to seek their main outlets in the United States, where the consumption of quinine is constantly on the increase. But the American market [as we all have reason to know, from personal acquaintance] is likewise overstocked. During the first six months of this year, there were imported 1,190,668 oz. of quinine, against the followlowing quantities in the same period during the four preceding years:

1886: 600,400
1885: 409,700
1884: 308,045
1883: 225,000

*Rhubarb.*—The condition of the rhubarb market, during the past year, has become even worse than it had been previously. Fine Shansi is no longer obtainable either in China or in London; and even the medium grades of Canton and Shanghai rhubarb leave much to be desired.

*Saccharin*—has at last been put on the market (see elsewhere in this number), and Gehe & Co. think that the prospects of its extended use are good.

Among the amido-derivatives of the aromatic acids, there appear to be some other sweet compounds. Wittig, some time ago, reported in the *Chemiker Zeitung* having found such a body which he supposed to be *para-sulphamido-benzaldehyde.*

*Strophanthus Seeds.*—It is quite probable that the staple product hereafter coming into general use will be the active principle strophanthin, which is as yet too expensive. It remains to be seen which of the various species of strophanthus will be the most profitable source for preparing it. The mother-plant of the pods at present available in the market is not yet determined with absolute certainty, at least so far as the species is concerned. The present supply is said to come from the Shiri Highlands in eastern Africa. But in Western Africa it is also reported to be common, although its collection there is said to be quite difficult. The plants are reported to occur only singly, not in groups, and it is reported that the natives have already commenced to tear off and destroy the unripe fruits to prevent their coming into the hands of the Europeans.

### Blue Marking Ink for Boxes, Bales, etc.

Mix a sufficient quantity of ultramarine with barytes (sulphate of barium, blanc fix) and water to produce the desired tint. It may be rendered more permanent by adding some liquid glue (solution of glue in acetic acid) or some starch paste, prepared with the addition of a little wax.—*Chem. and Drugg.*

### Some of the New Synthetical Remedies.

H. Helbing, the pharmacist of the German Hospital, of London, England, gave, in a paper before the British Pharm. Conf., the following summary of some of the new chemical derivatives employed more or less extensively in medicine:

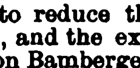
*Acetphenetidin*, Paracetphenetidin.

$$NH(COOH_3)C_6H_4OC_2H_5.$$

This antipyretic has only been in use for a short time, but the results hitherto obtained with it are described as excellent. Hinsberg and Kast have shown that a dose of 3 to 8 grains is able to reduce the temperature of the human body by 3.6° F., and the experiments carried out in the clinic of Prof. von Bamberger, of Vienna, have only tended to confirm the favorable accounts of the discoverers. It appears to be perfectly devoid of secondary effects, and fully able to bear comparison with all other febrifuges.

It is a grayish-white crystalline powder without smell, producing a slightly pungent after-taste; it is practically insoluble in water, but dissolves readily in alcohol. The melting point is at 275° F. It is advantageously prescribed in the form of powders containing the above mentioned dose, since, from its tastelessness, it is readily taken by patients.

*Amylene hydrate.*—Tertiary amylic alcohol, dimethylethylcarbinol,



$$\left.\begin{matrix}CH_3\\CH_3\\C_2H_5\end{matrix}\right\rangle C.OH.$$

Only a few weeks ago, this compound was recommended by Professor Jolly and Von Mering as a soporific, in which class of remedies it appears to have taken a prominent place. Before applying it to patients, numerous experiments on animals had been carefully carried out. A dose of ʒ i. is sufficient to produce sleep for six or eight hours. No unpleasant secondary effects are recorded.

The remedy is given in water (in which it is soluble in the proportion of 1 : 12), with a little juice of licorice.

| | |
|---|---|
| Amylene hydrate, | |
| Liq. glycyrrhizæ | āā ʒ i. |
| Aq. | ad ℥ i. |

S. To be shaken before use.

It is also administered in capsules of gelatin.

It is a clear fluid with an odor reminding one slightly of camphor; it is soluble also in alcohol. Specific gravity 0.812 at 53.6° F. Boiling point 216° F.

*Antifebrin*, acetanilide, phenylacetamide,

$$C_6H_5NH.CH_3CO.$$

Since the first experiments with this valuable remedy, performed by Drs. Cahn and Hepp in Strasburg, antifebrin has been carefully studied by others, and with the same satisfactory results. It possesses the advantages over other remedies of this class of being low in price, and, moreover, the dose is small—2 to 10 grains once, twice, or at most three times a day sufficing to produce a considerable reduction of temperature in cases of typhoid fever, pneumonia, also in erysipelas and acute rheumatic gout. It is given in powders as well as in solution; for the latter mode of administration, it will be found most advisable to dissolve it in brandy, subsequently adding a little water and syrup. The following formula is given as an example:

| | |
|---|---|
| Antifebrin | ʒ i. |
| Brandy | ℥ ivss. |

Dissolve and add:

| | |
|---|---|
| Distilled Water, | |
| Simple Syrup | āā ʒ vi. |

One teaspoonful to be taken as directed.

The remedy is thus rendered very pleasant to take, and the patients express no aversion to it.

A good preparation should be of pure white color, and form moderately large crystals, which are but very sparingly soluble in cold water, rather more readily in hot, and easily in alcohol; antifebrin melts at 233.6°, and boils at 563°.

*Antipyrin*, oxydimethylchinizine, $C_{10}H_9CH_3.N_2O$.—Antipyrin may fairly be considered the most popular of modern antipyretics. The dose varies from 15 to 30 grains twice, three or more times a day. For children 3 to 12 grains will be found sufficient. It is of great value in all febrile diseases, reducing temperature very promptly. Of late it has also been applied in subcutaneous injection as a local anæsthetic. In some cases a bright pink rash, like nettle rash, will suddenly appear during treatment; this is considered to be of no importance, as it causes no inconvenience and soon disappears.

Antipyrin is readily soluble in water and alcohol; it possesses but little flavor, and that not unpleasant; and is, therefore, adapted for administration in solution. It thus possesses great advantages over quinine, especially in treating children, who take it very readily if mixed with a little syrup, thus:

| | |
|---|---|
| Antipyrin | 80 gr. |
| Simple Syrup | ℥ i. |
| Water, add to | ℥ iv. |

Two teaspoonfuls for a dose.

This mixture is almost free from bitterness, and children do not at all object to it.

It crystallizes in colorless laminæ, which melt at a temperature between 230° and 235.4° F.

*Antithermin*, phenylhydrazinlevulinic acid,

$$CH_3C(C_6H_5N-NH)CH_2-CH_2COOH,$$

has been recommended as a febrifuge, but although it is now obtainable in the market, details are still wanting as to dose and effect. It forms large colorless crystals of a slightly bitter taste, which cause an unpleasant grating when ground between the teeth. It is insoluble in water, and but sparingly soluble in alcohol. The most suitable form for administering antithermin is the pilular.

*Aseptol*, acidum sozolicum, orthophenolsulphonic acid, $C_6H_4OHSO_2OH$.—By aseptol we understand a 33⅓ per cent solution of orthophenolsulphonic acid. It is almost odorless, but faintly suggests carbolic acid, and is reported to possess the antiseptic properties of this latter antiseptic and of salicylic acid, standing, as regards strength, midway between them. Its superiority lies in the possession of antiseptic without poisonous or irritating properties, so that it is especially adapted for abdominal surgery and for opthalmological operations. Sozolic acid is readily soluble in water, alcohol, and glycerin. It is applied in a solution of 3, 5 or 10 per cent, to which strength the stronger solution can be reduced by dilution with water.

*Betol*, salicylate of β naphthol ether,

$$C_6H_4OH.COO.C_{10}H_7.$$

This remedy is one of the very newest, and analogous to salol. It is applicable, therefore, in all those cases in which this latter is found to be of use, viz., rheumatism, cystitis, etc. The dose is given as 5 to 8 grains in some cases of intestinal catarrh. As it is not a phenol compound, betol possesses the advantage of being freer from detrimental properties than salol.

It forms small, white, resplendent crystals, is almost devoid of taste, and being insoluble in water is best dispensed as a powder or in compressed tablets, or in pills made up in liquorice juice and powder, each containing 2½ grains of betol. It is soluble in alcohol, as also in fatty oils, and is therefore well adapted for being worked up with butter of cacao into pencils for the treatment of gonorrhœa. These may be prepared by melting four parts of ol. theobromæ, and adding to the warm liquid one part of betol. This readily dissolves in the fat and the mixture is allowed to partially cool, when it is poured into moulds. The finished product contains, of course, 20 per cent of betol.

The melting point of betol is 203°.

*Hypnon*, acetophenon, $C_6H_5COCH_3$.

By means of 3 to 8 grain doses of this very powerful soporific a profounder sleep is produced than that caused by chloral hydrate. Hypnon possesses an agreeable aroma somewhat resembling a mixture of oil of bitter almonds and neroli, but its action on the mucous membrane of the mouth is almost caustic. It is dispensed, therefore, in capsules of gelatin, each of which contains 1 grain of the remedy combined with 10 of almond oil, to prevent any risk of unpleasant effects.

It is a colorless fluid, sparingly soluble in water, more readily so in alcohol, of the specific gravity 1.032 at 59° F., the boiling point being 410° F.

*Methylal*, dimethylether of methylene, $CH_2(O.CH_3)_2$.—Methylal is a soporific of very recent date. It is administered in doses of 20 to 25 grains in water, with a little syrup.

Thus:

| | |
|---|---|
| Methylal | ʒ i. |
| Syr. Orange Flower | ℥ ss. |
| Water | ʒ i. |

One tablespoonful for a dose.

It has also been applied externally as a local anæsthetic dissolved in oil, or as an ointment, with lard as a base. Both forms are made to contain 15 per cent of methylal.

It is a colorless ethereal fluid which smells like a mixture of chloroform and acetic ether, and tastes pungent and aromatic; it is readily soluble in water as well as in alcohol; the specific gravity at 59° F. is 0.855; it boils at 107.6°.

*Naphthalin*, $C_{10}H_8$.—To most fungi naphthalin has been found to be a powerful poison, and has proved very valuable as an antiseptic, being applied in the same manner as iodoform. Professor Rossbach, of Jena, first administered it internally in cases of acute and chronic enteric catarrh, in typhoid fever and acute gastro-intestinal catarrh. It has since been extensively applied, but not with absolutely uniform results. It is given as a powder in wafer in doses of 2 to 8 grains, to which a drop of oil of bergamot is added to obliterate the peculiar smell of tar belonging to it, which makes it otherwise impossible for some patients to take it. For example the following formula may be adopted:

| | |
|---|---|
| Naphthalin | 80 gr. |
| Sacch. Alb | 80 gr. |
| Ol. Bergam | 1 gr. |

Make a powder and divide into ten doses, one to be taken three times a day.

Naphthalin is a crystalline body forming colorless, resplendent scales; it tastes pungent, is insoluble in water, but sparingly soluble in cold alcohol and fatty oil, but readily if these agents are heated. The solution in oil and the ointments should be made to contain 10 per cent of naphthalin, which must be added to the warm fatty matter. Melting point 176° F., boiling point 424.4°.

*Naphthol β* = naphthol, isonaphthol, $C_{10}H_7OH$.—As a substitute for tar preparations, naphthol has been applied to the skin with very good results, especially in psoriasis and other chronic affections. A 2 to 5 per cent solution in alcohol is the usual form of application, but it can also be made up into ointment containing 3 to 25 per cent. Internal administration of this compound was attended with toxic effects, and has, therefore, been discontinued.

It crystallizes in resplendent scales, has an aromatic odor, is slightly soluble in hot water, readily so in alcohol and fatty oil. A very good ointment may be made by adding 1 part of naphthol to 10 of melted lard and well stirring. The substance dissolves without much difficulty, and forms a white smooth product.

Naphthol melts at 252°, and boils at 546·8°.

It should not be confounded with naphthalin.

*Salol*, phenylether of salicylic acid,

$C_6H_4OH.COO.C_6H_5$.

This remedy appears to give the greatest promise of future importance, for, in the short time that it has been known, it has done very good service as a febrifuge and an anti-rhoumatic, being administered in doses of 15 to 30 grains two or three times a day, as also as a gargle ℨij. thus—

| | |
|---|---|
| Salol | ℨ ij. |
| Spirit. vin | ℥ iv. |

A teaspoonful to a glass of warm water for stomatitis and ulcerations of the mouth and pharynx.

A salol mouthwash is also very much recommended, and may be prepared as follows:

Take salol gr. 40, dissolve in ℥ iv. of a suitable spirituous dentifrice liquid. Half a teaspoonful to be used in a glass of water, with which it forms a milky emulsion.

For chronic forms of diphtheria, it is reported to have more powerful effect than solutions of chlorate of potassium or salicylic acid. It is also applied, worked up with butter of cacao into pencils, as an antiseptic. These are prepared in a similar manner to those of betol before mentioned.

Salol is a white crystalline powder of a mild aromatic odor; it is insoluble in water, but soluble in alcohol. The melting point is 108° F.

*Thallin*, $C_9H_{10}N(OCH_3)$.—Thallin is employed either as sulphate or tartrate. It is rapidly obtaining a recognized position in the materia medica, for it is a reliable and powerful antipyretic, applicable in all kinds of febrile conditions. Three to eight grains in pill are considered a suitable dose. It is also applied externally, especially lately, with great success for injections in cases of acute and chronic gonorrhœa, for which it is prescribed in aqueous solutions containing 1 drachm of the thallin salt in ℥ vi.

Salts of thallin are crystalline powders, not quite pure white in color, of a bitter and intensely aromatic taste, and of a peculiarly persistent odor, which is similar to that of cumarin; they are readily soluble in water, but far less so in alcohol.

*Urethan*.—Ethyl-urethan, $CO(NH_2).OC_2H_5$. As a mild hypnotic urethan is very useful, being administered in doses of 15 to 40 grains, either as a powder or in solution, with a little syrup as a corrective. Thus—

| | |
|---|---|
| Urethan | ℨ ij. |
| Syr. simpl | ℥ i. |
| Aqua | ℥ iij. |

Two tablespoonfuls for a dose.

It does not produce a comatose condition like chloral-hydrate, but tends to induce a healthy natural sleep in cases where this is impeded by other causes.

It is a crystalline body of a mild ethereal odor, tastes somewhat like saltpetre, is soluble in water and alcohol, and melts at about 120° F.—*Pharm. Jour.*, September 24th, 1887.

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**"Antifungine,"** a proprietary article originating in Germany, is said to consist of acid borate of magnesium and free boric acid, with a few sulphates and chlorides. Its value as an antiferment, as shown by its effects in connection with culture media, is said to disprove its alleged value, as the common kinds of bacteria and bacilli grow quite as vigorously as if it were absent.

### Fluorine Compounds as Antiseptics.

In a paper read before the Chemical Section of the British Association at Manchester, Mr. W. Thomson called attention to the remarkable antiseptic properties possessed by some fluorine compounds, especially by the fluorides and fluosilicates of sodium, potassium, and ammonium. Of these, he considers the fluosilicate of sodium best suited for a general antiseptic, it being non-poisonous and without odor; moreover, it has only a slightly saline taste, and might, therefore, he suggests, be employed in the preservation of food.

Sodium fluosilicate is soluble in water, to the extent of 0.61 in 100; but, according to Mr. Thomson, such a saturated solution is not irritating to wounds, whilst it possesses greater antiseptic properties for animal tissues than a 1-in-1000 solution of perchloride of mercury, which could not be ordinarily employed for surgical purposes without producing poisonous effects.—After *Pharm. Journal.*

### Oil of Evodia, a New Deodorant for Iodoform.

H. Helbing, of London, speaks of the essential oil obtained from *Evodia fraxinifolia* as able to overcome the odor of iodoform whether in substance or solution. Its own odor is agreeable and powerful, and in practice the addition of two drops to the ounce is sufficient to obtain complete obliteration of the odor of iodoform. Christy, in No. X. of "New Commercial Plants," says that Don probably was first to describe it in "Prodromus Floræ Nepalensis," in 1825, as *Rhus fraxinifolium;* a large tree native to Nepal. According to Sir William J. Hooker ("Icones Plantarum," 1848), it is referred to Blume's genus *Philagonia*, N. O. Terebinthaceæ. Hooker and Bentham, more recently ("Genera Plantarum"), include it in the genus *Evodia*, N. O. Rutaceæ.

The fruit consists of three or four carpels placed together in shape like a star; these are brown exteriorly and dotted with small warty points. Each carpel contains one seed of roundish heart-shape, black, diam. 4–5 millim. The fruit yields, on distillation, about 4% of thin essential oil of pale yellow color, s. g. not exceeding 0.840°, odor similar to bergamot, pungent taste, and soluble in alcohol and ether.—*Pharm. Jour.*

### Laboratory Tables.

Though it has its drawbacks, there can be little doubt that the best material for a laboratory table-top is wood. Other materials may be better for special purposes, but for general use wood is best, and among woods teak is to be preferred. The wood ought never to be varnished or painted, as the action of alkalies and strong acids on the preparations employed renders the table unsightly. The now common custom of saturating the wood with melted paraffin is not open to the same objection, and has, indeed, many advantages. The paraffin renders the wood impervious to water, and, on account of its chemical indifference, it prevents the table being seriously attacked by sulphuric acid or caustic soda, which will sometimes be spilled even in the best regulated laboratories. Probably the chief objection to paraffin is that it melts and adheres to any warm vessel or apparatus that may chance to come in contact with it. In this way a new source of error is introduced into analyses, as the slight coating of paraffin on a capsule or crucible lid being invisible may be forgotten to be removed by ignition or otherwise before weighing. Of course, it is easy to say, "Never lay any vessel you intend to weigh on the table;" but a possible source of error is present all the same. My own view of the matter is, that for qualitative and general work it is well to have the tables paraffined, while for quantitative and finer work it is better to have the surface clean.

Slate is objectionable as a material for tables, firstly, because of its antipathy to glass vessels; secondly, because it is not readily pierced or cut; and thirdly, because it is cold to the touch and cold to look at. Yet it is the best kind of surface on which to place the combustion-furnace, air-bath, and similar apparatus. In like manner, although lead is not to be commended for general use, it is a good plan to have one table covered with it, and so arranged that any liquid falling thereon may collect at one end, and so be run off into the waste. All distillations should be conducted on this table, which is not only a convenient arrangement for getting rid of the water used in condensing, but is also a security against danger when working with inflammatory liquids.

The attempt to convert each working bench into a sort of complete laboratory seems to be a mistake, however heretical this view may appear to some. To have tank water, distilled water, steam, gas, draught, and sink "laid on" at each bench produces an unnecessary and expensive complication of pipes; and the more pipes and stopcocks, the more plumbers and repairs. Simplicity is a great principle in the arrangement of laboratories, as in most other matters. All materials and apparatus required by each worker should be within easy reach, but not necessarily at his own particular table, which should, indeed, only be supplied with those requisites the absence of which would produce positive inconvenience.—D. B. Scott, in *Chem. and Drugg.*

## Selections from the Unofficial Formulary of the British Pharmaceutical Conference.

At the late meeting of the British Pharmaceutical Conference, the Committee on the Unofficial Formulary presented their report, which contained formulas for thirty-seven preparations. Several among these are not used in this country at all; others are either officinal in the U. S. Ph., or are usually prepared by different methods, or are already provided for by the American Committee on National Formulary, which is about to be published. The following, however, appear to present features of interest, and are therefore put before our readers.

The weights and measures are those recognized by the British Pharmacopœia.

The members of the Formulary Committee were: W. Martindale, *Chairman;* W. A. H. Naylor, *Secretary.* A. C. Abraham, T. Greenish, T. B. Groves, T. Maben, N. H. Martin, R. Reynolds, C. Symes, J. C. Thresh.

### 1. *Emulsio Olei Morrhuæ.*

### Emulsion of Cod-Liver Oil.

| | |
|---|---|
| Cod-liver Oil | 40 fluidounces |
| Tragacanth, in powder | 200 grains |
| Tincture of Benzoin | ¼ fluidounce |
| Spirit of Chloroform | ¼ " |
| Glycerin | 2 fluidounces |
| Oil of Cassia | 2 fluidrachms |
| Distilled Water | a sufficient quantity |

Place the oil in a dry Winchester quart, and pour in the tragacanth, tincture of benzoin, and spirit of chloroform, previously well mixed; agitate briskly for a minute; then add all at once 1 pint of distilled water and agitate as before. Lastly, add the essential oil, glycerin, and sufficient distilled water to produce 4 pints. Shake vigorously for a few minutes.

Dose 2 to 8 fluidrachms.

*Note.*—Tincture of Quillaia is directed to be prepared from 2 oz. of quillaia bark (in No. 20 powder) and enough alcohol to make 1 pint.

### 2. *Injectio Curare Hypodermica.*

### Hypodermic Injection of Curare.

| | |
|---|---|
| Curare (the South American Indian Arrow poison) | 5 grains. |
| Distilled Water | a sufficient quantity. |

Reduce the curare to powder in such a way as to prevent its coming in contact with the naked hand, and add distilled water to form a thin paste. Transfer to a small funnel plugged with absorbent cotton, and gradually pour upon it distilled water until 1 fluidrachm is obtained. If the injection be required in haste, proceed in the following manner:

To the 5 grains of curare reduced to powder add 1 fluidrachm of distilled water, throw on a filter, and when the liquor ceases to drop, pour over the contents of the filter distilled water sufficient to produce 1 fluidrachm.

Dose, 1 to 6 minims.

*Note.*—The formulary defines curare as a dry inspissated extract of varying composition, prepared in South America from the bark of different species of Strychnos (principally *Strychnos toxifera* Schomburgk) and other plants.

### 3. *Linimentum Opii Ammoniatum.*

### Ammoniated Liniment of Opium.

| | |
|---|---|
| Soap Liniment | 6 fl. oz. |
| Compound Camphor Liniment | 6 " |
| Tincture of Opium | 6 " |
| Belladonna Liniment | 1 " |
| Stronger Solution of Ammonia | 1 " |

Mix and filter.

### 4. *Liquor Ferri Hypophosphitis Compositus.*

### Compound Solution of Hypophosphite of Iron.

| | |
|---|---|
| Hypophosphite of Calcium | 320 grains. |
| Hypophosphite of Sodium | 320 " |
| Hypophosphite of Magnesium | 160 " |
| Sulphate of Iron | 240 " |
| Carbonate of Sodium | 320 " |
| Hypophosphorous Acid, sp. gr. 1.36 | 1 fluid oz. |
| Distilled Water | a sufficient quantity. |

Dissolve the hypophosphites of calcium, sodium, and magnesium in 8 oz. of water.

Dissolve the sulphate of iron and carbonate of sodium in separate portions of water; mix and wash the precipitated carbonate of iron with sweetened water until the washings cease to give a precipitate with solution of nitrate of barium.

Transfer the moist precipitate to the solution of the hypophosphites, and add gradually the hypophosphorous acid. Make up to 1 pint by the addition of distilled water.

Each fluidrachm contains about 2 grains each of hypophosphite of magnesium, and 1½ grains of hypophosphite of iron.

Dose, ½ to 2 fluidrachms.

The preceding formula is criticised in an editorial of a subsequent number of the *Chemist and Druggist*, as follows:

"It will be noticed that the unofficial formula directs the iron hypophosphite only to be made extemporaneously, and this is done by dissolving freshly precipitated ferrous carbonate in hypophosphorous acid. This avoids contamination of the solution with calcium sulphate. . . .

"The process which the Formulary Committee have adopted is superior to other methods for making a solution of ferrous hypophosphite. Syrups and liquors made in this way remain much longer free from deposit than when made by the sulphate method, and the proneness to formation of sulphuretted compounds which characterizes the latter method is done away with. In several respects the details of the formula require modification. In the first place, the carbonate of sodium is much in excess. The amount of carbonate of sodium required to decompose 240 grains of sulphate of iron is 246 grains. The excess may do no harm, but it does no good. Then, hot water is not directed to be used to dissolve the sulphate and carbonate; cold solutions give a mixture which filters very slowly, so that oxidation is greatly favored. The best plan is to dissolve each salt in half a pint of boiling water (the iron solution is the better for a few drops of dil. sulphuric acid to make it clear); then pour the soda solution into the iron solution, stirring constantly, cover, and allow to settle; decant the supernatant liquid, throw the precipitate on a filter, and wash with hot water. We question if the addition of sugar to the wash-water is an advantage. The formula directs the washed precipitate to be transferred to the solution of the alkaline hypophosphites, but this is somewhat clumsy; it is better to dissolve it in the acid and 3 oz. of water, then to mix this solution with the other, filter and make up to 1 pint with water. In Churchill's own *liquor* there was 1 grain of free hypophosphorous acid in each fluidrachm, but the Formulary provides only for ¼ minim, nearly four-fifths of the acid being taken up by the iron. This is rather an improvement so far as taste is concerned."

### 5. *Liquor Picis Carbonis.*

### Solution of Coal Tar.

| | |
|---|---|
| Prepared Coal Tar | 4 oz. |
| Tincture of Quillaia | 1 pint. |

Digest at a temperature of 120° F. for two days, allow to become cold, and decant or filter.

*Note.*—Prepared Coal Tar is directed by another formula to be obtained by placing commercial coal tar in a shallow vessel, and heating at a temperature of 120° F. for one hour, stirring frequently.

### 6. *Pilula Ferri* (*Blaud*).

### Iron Pill (Blaud).

| | |
|---|---|
| Sulphate of Iron | 60 grains. |
| Carbonate of Potassium | 36 " |
| Sugar, in powder | 12 " |
| Tragacanth, in powder | 4 " |
| Glycerin, in powder | 2½ minims. |
| Distilled Water | 2½ " |

Reduce the sulphate of iron to fine powder, add the sugar and tragacanth, and mix intimately. Finely powder the carbonate of potassium in another mortar, and thoroughly incorporate with it the glycerin and water. Transfer this to the mortar containing the sulphate of iron, beat thoroughly until the mass becomes green and assumes a soft, pillular consistence, and divide into twenty-four pills.

Each pill contains about 1 grain of ferrous carbonate.

Dose.—1 to 3 pills.

### 7. *Syrupus Butyl-Chloral.*

### Syrup of Butyl Chloral.

### [Syrup of Croton-Chloral.]

| | |
|---|---|
| Hydrate of Butyl-Chloral | 320 grains. |
| Syrup, sufficient to produce | 1 pint. |

Dissolve the hydrate of butyl-chloral in the syrup previously made hot.

Dose.—1 to 4 fluidrachms.

### 8. *Syrupus Calcii, Manganesii et Potassii Hypophosphitum.*

### Syrup of the Hypophosphites of Calcium, Manganese, and Potassium.

| | |
|---|---|
| Hypophosphite of Calcium | 320 grains. |
| " Manganese | 160 " |
| " Potassium | 160 " |
| Boiling Distilled Water | 4 fluidounces. |

Rub together in a hot mortar till nearly dissolved, and add syrup sufficient to produce 1 pint.

Dose.—½ to 1 fluidrachm.

Of this formula, the editor of the *Chemist and Druggist* says: "This formula is one which we can say little good of, although with a slight modification an excellent syrup can be made of the ingredients. The weak point in the formula is the direction to dissolve the solids (640 grains) in 4 fl. oz. (1750 grains) of boiling water. This, on the face of it, is a mistake. The solubility of calcium hypophosphite in boiling water is 1 in 6 (the Br. Ph. erroneously states that this is the factor for cold water, whereas 1 in 6.8 is more correct. [The U. S. Ph. has the correct figures].)

The ratio between 320 grains of this salt and 4 fl. oz. of water is 1 to 5.47, so that if we were to omit the other salts we would yet fail to effect complete solution, and we find this to be the case in practice. The formula has been slightly amended in the second edition of the Formulary, the word "filter" being inserted after "dissolved"—surely it is not intended to filter out the undissolved hypophosphite! We have succeeded best by adding the syrup (hot) to the mixture of water and hypophosphites, but even thus there is slight crystallization when the syrup cools. The easiest method is to dissolve the hypophosphites in 10 oz. of boiling water, filter, and dissolve 10 oz. of sugar in the filtrate, strain, and add syrup to 1 pint.

### 9. *Syrupus Cascara Sagrada.*

### Syrup of Cascara Sagrada.

| | |
|---|---|
| Liquid Extract of Cascara Sagrada | 4 fluidounces. |
| " " Liquorice | 8 " |
| Carminative Tincture | 2 fluidrachms. |
| Syrup, sufficient to produce | 1 pint. |

Mix.

Dose.—1 to 4 fluidrachms.

### 10. *Tinctura Carminativa.*

### Carminative Tincture.

| | |
|---|---|
| Cardamom Seeds, bruised | 600 grains. |
| Stronger Tincture of Ginger | 1¼ fluidounces. |
| Oil of Cinnamon | 100 minims. |
| Oil of Caraway | 100 " |
| Oil of Clove | 100 " |
| Rectified Spirit, sufficient to produce | 1 pint. |

Macerate the cardomoms in 15 fl. oz. of the spirit for a week, decant, express, and dissolve the oils in the mixed tinctures, making up to 1 pint with rectified spirit.

*Note.*—Stronger Tincture of Ginger is made by exhausting 10 av. oz. of ginger with enough alcohol to make 20 fl. oz. (Brit. measure), that is, about half the strength of a fluid extract.

### 11. *Tinctura Strophanthi.*

### Tincture of Strophanthus.

| | |
|---|---|
| Strophanthus Seeds, in No. 80 powder and dried at 110° F. | 1 ounce. |
| Stronger Ether,<br>Rectified Spirit, each, a sufficient quantity to make | 1 pint. |

Pack the seeds in a percolator, and moisten with stronger ether (sp. gr. 0.720). Macerate for twenty-four hours, then allow percolation to proceed, continuing the addition of ether until the fluid passes through colorless (about 8 or 10 fl. oz. suffice). Remove the marc from the percolator, and dry it, gradually heating it to 120° Fahr. Again reduce it to powder, repack in the percolator, and moisten with rectified spirit.

Macerate for forty-eight hours, then pour on successive quantities of spirit, percolating slowly, until 1 pint of tincture is obtained.

Dose.—2 to 10 minims.

*Note.*—Strophanthus seeds are defined thus: "The seeds, deprived of the apical hairy appendage, of a species of *Strophanthus* growing in Eastern Africa, and usually referred to *S. Kombe* Oliver. The seeds are plano-convex, of a grayish-green or pale brown color, 18 millimeters long and 4 millimeters broad in their greatest diameter, rounded at the base and tapering at the apex, covered with appressed silky hairs, which become much shorter toward the apex of the seed, and furnished on the flat side with a longitudinal ridge, disappearing below the middle of the seed."

## Note on Cutaneous Anæsthesia.

DR. E. JACKSON, of Philadelphia, in a paper in the *Medical News* of Sept. 3d on the action of stenocarpine, speaks of something which is worthy of attention by those who employ either this substance or cocaine for cutaneous anæsthesia. Referring to reported failures by Dr. Knapp to obtain abolition of sense of pain, Dr. Jackson expresses the opinion that the preliminary washing of the skin with soap and water was the cause of failure. To confirm this opinion, Dr. Jackson washed the flexor surface of his forearm with soap suds and followed it by an application of the drug. Analgesia had not resulted after a half-hour had elapsed. He then neutralized the residue left on the surface by a dilute acid solution, and in ten minutes notable anæsthesia was produced. It is further stated that, in the case of a cocaine solution, contact with air containing free ammonia will cause precipitation of the alkaloid.

As careful washing with the aid of soap is now a preliminary to all operations with aseptic precautions, the importance of this observation is evident.

## How to Manage a Kerosene Lamp.

IT may seem superfluous to give instructions as to the trimming of a lamp, every one being already supposed to know how to perfom this very simple operation; but our experience teaches us that many users of lamps do not get anything like the satisfactory results from their lamps that they might if only a little more care and attention were bestowed upon them.

Before proceeding to detail the mode of procedure in the filling and trimming of a lamp, we may say that if your lamp seems to be giving a poorer light than it once did, before complaining of its quality examine the following points, as in all probability you will find the trouble to be caused by one or more, perhaps by all of them.

### THE VESSEL.

Can the reservoir be dirty? Has it been emptied recently?

Every lamp should be emptied completely once a week, and the oil in the bottom thrown away. See that your lamp be kept free from water and dirt.

Is your vessel filled frequently?

Lamps should be filled every day, so that you begin the work of the evening with a full fount.

### THE BURNER.

Is the burner clean?

The life of the flame is the air it sucks in through the holes in the disc around the wick tube. If the flame is smoky, or smells, see whether these holes are not clogged or gummed up. If so, then boil the entire burner for a few moments in soda and water, and mark the change.

Is the wick tube large enough?

The wicks now made are more loosely woven, and are thicker than they have been in the past. See that the tube does not so bind the wick as to check the oil in mounting to the flame. The tube should be large enough to allow the wick to be moved up and down freely.

### THE WICK.

Is the wick worn out?

We do not mean burned out, but worn out. The wick is the pump to lift the oil from the fount to the flame. It may become clogged. Put in a new wick at least once a month. Wicks are now so cheap that the expense is trifling. Dry a new wick before putting into lamp.

Does the wick need trimming?

If so, do not scrape it off as some do. it injures the wick and fills the burner with dirt. Cut it evenly across the top. Trim the wick every day, and you will be amply repaid for your trouble.

### THE OIL.

Never use common oil.

Even with a good lamp, good burner, and good wick, you cannot have a good light without good oil.

### THE MANIPULATION OF LAMP.

For the sake of clearness we put our remarks upon the subject of the manipulation of lamps in the form of rules.

1.—See that you get the right size wick, not too narrow or too thin. It should comfortably fill the wick case both in width and thickness.

2.—Thoroughly dry your wick. This is most important. or the oil will not flow up to keep the flame supplied. If when the wick is turned up to its full power, the flame gradually diminishes in size, the cause is almost sure to be dampness of wick.

3.—Before putting a new wick into your burner, cut it evenly across the top with a very sharp pair of scissors, taking care not to jag the edges, then insert it evenly into the tube.

4.—Cut the wick perfectly level with the top of the wick case. The perfect flame of a paraffin burner should be tulip-shape and square at the top, it should not be pointed in the centre. If the flame be "forky," a little may be taken off the corners of the wick

5.—In cutting the wick of a lamp that is in use, remove merely the charred part that will cut quite easily.

6.—Fill the oil-vessel each time before using.

7.—To light your lamp, do not turn your wick above the opening in the cone; touch the wick with a lighted match or taper, by putting in through the opening in the cone. Our reason for this rule is that many persons are in the habit of turning it some way above the cone in order to see it, and then having lit it, the wick is not unfrequently left burning above the cone, instead of being turned below it, as it should be; the consequence being a bad light and offensive smell. The wick of every burner that is fitted with a cone should be some way below it, and quite invisible.

8.—When first lit, do not turn up the flame to its full height.

9.—In extinguishing a lamp, use the extinguisher. If, however, the lamp has not one fitted to it, lower the flame, and blow sharply *across* the top of the chimney.—*Br. and Col. Drug.* From "Petroleum: Valuable Hints to those who Use it."

### New Hampshire Pharmaceutical Association.

THE fourteenth annual meeting of this association was held at the Fabyan House, White Mountain, Sept. 27th and 28th, and was the most successful in all respects ever held by the Society. Eleven new members were admitted, making the present number eighty-five, or about one-third of the registered pharmacists in the State. The Treasurer's report showed the Association out of debt and $600.12 in the treasury. An essay on "The Manufacture of Native Fruit Wines" was read by the Secretary, C. B. Spofford, and the following officers for the year 1887–88 were elected: President, U. S. Whitman, Nashua; 1st Vice-President, G. F. Underhill, Concord; 2d Vice-President, Ward P. Whitcher, Lisbon; Secretary, C. B. Spofford, Claremont; Treasurer, F. A. James, Manchester; Auditor, P. H. Kelley, Manchester. Ex. Committee, J. D. Burbank, Manchester; A. P. Fitch, Concord; C. B. Spofford, Claremont.

Trips to Mt. Washington and a drive through Crawford Notch constituted the pleasures of the occasion, and all voted it a most enjoyable gathering.

C. B. SPOFFORD, Secretary.

### Concentrated Aqueous Solution of Boric Acid.

SCHOLZ has found that the solubility of boric acid in water may be greatly increased by the presence of small quantities of a seemingly indifferent body, namely *magnesia.*

When 1 Gm. of magnesia is mixed with 75 Gm. of water, and boric acid gradually added until the clear solution no longer became turbid on boiling, it was found that 12.4 Gm. of boric acid were consumed up to this point. But, on adding even quite a minute quantity of alcohol, this was found still to produce a strong opalescence. The quantity of boric acid was therefore, gradually increased, and the appearance of opalescence ceased after 8.1 Gm. more had been added. The resulting acid liquid now contained 1 Gm. of magnesia and 15.5 Gm. of boric acid. On evaporating the solution, it leaves a residue which, when powdered, forms a white, sweet-tasting powder, soluble in 4 parts of hot water.

The same preparation may be made by taking 2.33 Gm. of carbonate of magnesium instead of 1 Gm. of magnesia.—After *Pharm. Zeitsch. f. Russel.*, No. 34.

*Note by* ED. AM. DRUGG.—The preceding solution has been tried by one of us for the purpose of impregnating gauze, and been found to work satisfactorily. It might be called:

*Liquor Magnesii Boratis.*

| | | |
|---|---|---|
| Magnesia | 100 | parts |
| [or Carbonate Magnesium | 233 | "] |
| Boric Acid | 1,550 | " |
| Water | 7,500 | " |

Mix them, and heat in a water-bath until perfect solution has been effected.

This seems to be about the composition of the *antifungin* now offered in the European market.

### Amylene Hydrate.

AMYLENE HYDRATE, lately introduced as an agent for producing sleep, was classed by Wurtz as a tertiary alcohol. It is a colorless, limpid liquid, boiling at 100° C. and has a s. g. of 0.81. It dissolves in 8 parts of water, and is miscible with ordinary alcohol in all proportions. Its flavor and odor resemble camphor and peppermint. The presence of fusel oil or impure potato-spirit renders its therapeutic use dangerous.

Four grammes given to an adult are said to cause a calm, refreshing sleep for six to nine hours. Its hypnotic action is not so strong as that of chloral hydrate, but exceeds that of paraldehyde. Over the former it has the advantage of less liability to disturb the action of the heart, while it requires a smaller dose than that of paraldehyde, and is more easily taken. The relative proportion of dose is that of 1, 2, and 3. It causes no disturbance of the digestive organs and may be used by enema.

The amylene hydrate made by Kahlbaum, of Berlin, is that recommended by Dr. von Mering in the *Pharmaceutische Post.*

### Testing fixed Oils for Copper.

J. OLDHAM BRAITHWAITE reports that, having occasion to test a sample of olive oil for copper, he first tried incineration of the oil and subsequent analysis of the ash, but he found the rate of incineration so tedious that he cannot recommend it. He finally adopted the following method:

Pour about 10 C.c. of solution of potassium ferrocyanide into a test tube and add to it an equal volume of oil. Shake well for a few minutes and allow to stand. If copper be present, a bright reddish pink precipitate is formed at the juncture of the two liquids in from one to twelve hours, according to the amount of the metal present.

In order to test the delicacy of the reaction, it was found that when five milligrammes of pure dry oleate of copper (equivalent to 0.00056 gramme Cu.) were dissolved in 100 grammes of oil, a distinct reaction was given by this test in twelve hours.—*Pharm. Journ.*

### The Cork-Tree in the Forests of Tunis.

THE forests of Tunis, which cover an appreciable part of the surface of the country, were, until the French occupation, subject to no supervision, and suffered from the many causes resulting from the want of that supervision. In 1883, the French, alive to the importance of preserving what remained of these forests, which are the property of the State, placed them under the management of a separate department, which has carefully explored their extent, and conclusively demonstrated that they are an important element of national wealth.

The explorations of the new department have resulted in the division of the forests into two main groups; one consisting of the cork tree and deciduous oak, locally known as "Zen," covering the north-western angle of Tunis, where it abuts on the Algerian frontier and the sea, inhabited by the Kroumiers, and separated from the rest of Tunis by the river Mejerdah. These trees grow in a stratum of sandstone, which again reposes on the upper chalk, and they completely disappear where the latter stratum crops to the surface. They cover an area of about 360,000 acres, on 330,000 acres of which flourishes the cork-tree, and on 30,000 the "Zen." It is to the cork-forest that the attention of the new administration has been mainly directed. They are situated in a country with a very sparse population, dwelling in huts formed of the branches of trees. Their number is estimated at 12,000 souls, or only one individual to thirty acres.

It was open to the French administration, which wields the authority of the Bey, to adopt one of the three following systems in dealing with the woods and forests, viz., their sale, their concession for fixed periods, or their management by the State. The last was chosen as the system best adapted for their preservation and extension, particularly as it was held to be of paramount importance to favor the increase of rainfall in the country; the quantity of which is supposed to be intimately connected with the extent of the forests. That they were more extensive in the times of the Romans, and that they conduced to augment the annual rainfall, may be inferred from the discovery of numerous aqueducts among hills which are now absolutely denuded of trees and destitute of springs.

Much has been done during recent years in improving the condition of these cork-forests. Roads have been cut through them, and at stated intervals, spacious alleys have been frayed to serve as a means for arresting the march of the destructive fires which frequently ravage them. Above all, much progress has been made in barking cork-trees, an operation which consists in stripping the rough bark of the trunks of the trees, to the height of five or six feet from the ground. This virgin bark is without value, and only for ten years after the trees have been robbed of it is the inner bark available for commercial purposes, the trees giving a crop of cork every ten years. To meet the expenses incurred in these operations, there were available the sums accruing from the sale of trees already felled, and of the bark of the "Zen" for tanning. The director of woods and forests has drawn up an estimate of the receipts and expenses of his department for three consecutive decennial periods, according to which in twenty years, or at the commencement of the third decennial period, the anticipated expenditure per annum is £27,000, while the expected receipts are £96,000, leaving a profit of £69,000. The above calculation regards the cork-forests only which grow on the sandstone to the North of the Mejerdah River, in the region lying between the Algerian frontier and Bizerta. Little has been done towards working the less valuable forests to the South of that river. An experiment has been made in planting with trees a small tract of mountain land near Hammam-el-Enf, some ten miles to the east of the town of Tunis. The operation consists in digging holes at short distances, and in dropping in each a few seeds of the pine tree. Several hundred acres have thus been planted with tolerable success, at an expense of £4 10s. an acre.

The worst enemies of the forest are goats. Some French colonists have taken steps to exclude these animals from their estates, and the result has been that shrubs which never attained the height of more than two or three feet have in four or five years assumed the dimension of trees. This is particularly apparent in the large domain of Enfida, near Susa, belonging to the Franco-African Company, where the thuja, which covers much of that domain, from a dwarf shrub, has now, within the space of six years, attained a height of twenty to twenty-five feet.—From a Report of Consul Sandwith, in *Pharm. Journ.*

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**Mr. Thomas Greenish,** of England, visited this country during September and, after attending a portion of the session of the Medical Congress held in Washington, visited Detroit, Ann Arbor, and Chicago.

**The Hungarian Pharmacopœia,** recently issued, has the text in Latin and Hungarian, in parallel columns.

THE

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# EDITORIAL.

## Stenocarpine?

SINCE the first appearance of this supposed new anæsthetic (see our September number, page 162) we have taken much pains to put ourselves in possession of all accessible facts calculated to throw light upon this rather mysterious proximate principle. The original story of the discovery of the anæsthetic properties of the leaves of the tear-blanket tree is not such as to justify an unhesitating belief in its bona-fide character. A poultice made from the leaves of this tree is said to have rendered a tumor on a horse's foot so insensible to pain that it could be lanced without the operation being apparently felt by the animal. Now, even a poultice of coca leaves would be unable to accomplish this, so far as we know the properties of coca, unless the extract or infusion (or better still, the solution of the alkaloid) could reach the tissues and vessels below the skin. This and other circumstances have, indeed, from the date of its first announcement, raised our suspicions regarding the genuineness of the discovery, and we are to-day still in the same position. We have tried to obtain a specimen of the supposed alkaloid *stenocarpine*, but find that the manufacturers supply it only in two-per-cent solution, under the plea that the isolation of the alkaloid, which is said to be very delicate and liable to decomposition, is a very difficult and expensive operation. The manufacturers acknowledge that the name originally chosen for the substance, viz., stenocarpine, is not a proper one; they also acknowledge that the plant which formed the subject of the first report is a species of *Gleditschia* (namely, *Gleditschia triacanthos* L.), and, therefore, now prefer the name *gleditschine* for the substance. Whether this or the former name will long endure as the title of the mysterious alkaloid contained in the two-per-cent solution is a question which will soon be solved. Of course, we have the most implicit confidence in the good faith and bona-fide results of the medical gentlemen who have reported their experiments with the drug in the medical journals. But, until the missing link in the chain of evidence is supplied, namely, the proof that some proximate principle *actually* contained in the leaves of Gleditschia triacanthos is the substance with which these experiments were made, so long shall we look upon the whole matter with suspicion.

We have corresponded with several gentlemen in the Southern States in reference to this matter and all the information thus far obtained seems to confirm us in our present views. One of the communications we have received is presented on page 201.

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WHEN our colleges of pharmacy are ready to make their choice of prizes for their next graduating class, we commend to their consideration the merits of Millspaugh's "American Medicinal Plants," the completion of which is noticed in this number. It is a work which will be prized by every student, but which many may not feel able to purchase at the outset of their career as practising pharmacists, and it has the advantage over gold and silver medals that its possessor will have something from which he may derive both pleasure and profit, and which may serve to stimulate him to a continual study of a science, a knowledge of which is important for every pharmacist, but which rarely receives attention after the completion of his college course.

College faculties should appreciate the duty of so educating their students that they will acquire something more than a knowledge of the essential details of their future business, and one of the most important is a love for some particular branch of science which will make an original observer of each one of them. This is the way in which the character of the entire profession is most certain to become elevated through its influence upon each individual.

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IN a paper read by Prof. Leech, M.D., F.R.C.P., before the British Pharmaceutical Conference, at Manchester, on the 31st of August, the following expressions occurred:

> "It is felt by the members of our profession with increasing force that many of the conflicting results recorded by therapeutists, many of the failures met with when successes are expected, are connected with difference in strength in the drug employed. The want of reliance on the uniformity of our present official preparations is leading medical men to employ the preparations of those large houses in America and Germany as well as in England, who guarantee that their compounds are of a definite strength, and as the profession gets more and more imbued with the teachings of pharmacology, the search after preparations of fixed and definite composition will become general. *If pharmacy is to hold its own, each pharmacist must be in the future the guarantor of the purity of the medicines he dispenses, not the mere distributor.* The gain to pharmacists which will result from the acceptance of this position will, I believe, more than counterbalance the loss resulting from the transference to other hands of a certain portion of the work formerly devolving on them. Should the position be declined, it will be taken up by some other class, and with it may be transferred all other work which requires scientific training. The increased knowledge required will undoubtedly lead to an increase of educational requirements in science, and narrow the portal through which pharmacists must pass before entering on the work of their life. Especially in organic chemistry will a thorough training be necessary."

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THE attention of readers is asked to the circular issued by the New Jersey Pharmaceutical Association which will be found in our outside columns. It relates to an evil which is doing more than cutters, competition, or carelessness to injure the business of pharmacy at the present time. Unfortunately the class of dealers who make liquor-selling a feature of their business are not easily reached by professional journals—since they rarely take them unless they are sent to them gratuitously—and it is even less common to find them among the active members in pharmaceutical societies. The men who *do* interest themselves in advancing the interests of pharmacy or the welfare of the public do *not* as a rule retail drinks.

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INDIANA pharmacists are not inclined to be discouraged at the failure of previous efforts to secure enactment of a pharmacy law, but are again in the field and preparing for the next session of the Legislature. It was claimed, last year, that the failure to secure a desirable law was largely due to opposition on the part of jobbers who saw in the proposed law a measure which would limit the number of their prospective customers.

**Collodion** may be prepared most expeditiously, according to Chevreau, by first placing the gun-cotton into ether, and when it is thoroughly saturated, adding the alcohol. Solution is then almost instantaneous.

**Asiminine**, derived from the seeds of *Asimina triloba*, is amorphous, colorless, tasteless, insoluble in water, but readily soluble in alcohol or ether. Nitric acid colors it and its salts deep red, then violet.

A RUSSIAN physician states that he has succeeded in relieving toothache caused by caries of the teeth by making the patient rinse the mouth every half-hour with a dessertspoonful of a 20 per cent solution of permanganate of potash, taking care to hold the liquid in the mouth for some minutes.

**Bismuth Poisoning.**—A case recently occurred in France, in which it is alleged that the application of pure subnitrate of bismuth to ulcers following a burn, at intervals of two days, caused sore throat with false membrane on the uvula, palate, and tonsils, foul breath, vomiting, and loosening of the teeth.—*Br. Med. Jour.*

**Iodol Wax.**—The name of this cement for hollow teeth, which Mr. Williams made known in the *Journal of the Dental Association*, has found its way into the German and Austrian pharmaceutical papers as "Jodolwachs." It is made in Vienna as follows: Solid paraffin, 7.5; spermaceti, 7.5; iodol, 4.0; carmine, 0.06, and yellow wax, 12.0 parts.

**Detecting Gas-Leakages.**—Paper saturated with a solution of chloride of palladium has been recommended for detecting gas-leakages. The paper must be used wet. In the case of street mains, pieces of it are placed in iron pipes (½ in. diam.), and these inserted at intervals in the vicinity of the leakage. The gas reveals itself by coloring the paper brown or black.

**Antipyrin** has recently attracted attention as a substitute for morphine in the relief of pain. Prof. Germain Sée advises its use hypodermically, owing to the avoidance of disturbance of the digestive organs. Seven and a half grains are used as a dose, dissolved in an equal amount of distilled water. For a few moments the injection causes a painful sensation of tension, followed by a relief of all pain. Its use is said to be unattended by vertigo, vomiting, sleepiness or the excitation characteristic of morphine.—*Monthly Magazine.*

**Effect of Freezing upon Milk.**—Kaiser and Schmieder (*Bied. Centr.*) found that when milk is frozen slowly, the ice contained the greater part of the fat and the fluid portion most of the casein, milk, sugar, and salts. In that which was quickly frozen and partially thawed, the fat was equally distributed. If a dealer whose milk has been frozen pours off the clear fluid which underlies the ice, he is liable to a suspicion of adulteration on the one hand, or will deliver milk above the standard on the other. Milk which has been frozen should be well thawed and shaken up, and not be sold while any ice is visible.—*Pharm. Jour.*

**Newly-described Blistering Beetles.**—J. O. BRAITHWAITE described before the Br. Pharm. Conference two species of blistering beetles from South Africa, *Mylabris bifasciata* and *M. lunata*, the former of which is extremely rich in cantharidin, containing more than twice as much as *Cantharis vesicatoria*. The latter contains less of the blistering agent.

*M. bifasciata* is said to be sufficiently abundant at the Cape of Good Hope to be available as a source of cantharidin. In discussing the paper, Mr. Moss stated that another species of *Mylabris* is at present used as an important source of cantharidin.—*Pharm. Jour.*

**Stencil Ink.**—The *Chemist and Druggist* says that a good basis for stencil ink is made of the following materials: Shellac, 2 ounces; borax, 2 ounces; water, 25 fluidounces; and gum arabic, 2 ounces. Boil the borax, shellac, and some of the water until they are dissolved, add the gum arabic, and then withdraw from the fire. When the solution has become cold, complete the 25 fluidounces by addition of the rest of the water. For black ink fine lampblack is used; for red ink, Venetian red; and for blue, ultramarine and chalk. Add to these the basis above described in sufficient quantity to make the mixture of proper consistency.

**A Mucilage Substitute.**—In a time when gum arabic is difficult to obtain, and even then only at a high price, it behooves the chemist to look about for suitable substitutes. A good mixture for adhesive labels, and which is also cheap, can be made according to this formula:—Dissolve 14 oz. sugar in 2 pints of water, heat the solution to boiling, and add 3½ oz. of calcium hydrate; stir assiduously and allow the mixture to settle during several days. Draw off the viscous supernatant liquid, and mix it with a hot glue solution, in the proportion of 3 parts of the former to 1 of the latter. The resulting liquid forms an excellent adhesive mucilage, and if to it a small quantity of salicylic acid be added, it will keep for years.

**South American Cinnamon.**—At the exhibition of South American products, held at Berlin in the early part of this year, some cinnamon bark was exhibited which Professor Tschirch considered fully equal in aroma and sweet taste to the Ceylon cinnamon. It was in pieces about two inches broad and three-eighths of an inch thick. The essential oil prepared from it by Tschirch could not be distinguished from that of the Ceylon bark, though the yield was inferior. This is due to the fact that the pieces are taken from older branches, which have a bark rich in stone-cells, and therefore poorer in oil-cells. It is very low in price and should have a promising future. It was exhibited by Guimares & Valente, of Pernambuco.

**Sulphurous Fumigations.**—The Hâvre Congress of Hygiene have agreed to publish a set of directions for disinfecting, for the benefit of doctors or masters of infected vessels. Brimstone, broken up in small pieces, should be placed in broad and shallow earthenware or cast-iron dishes, of about 1 liter capacity. The vessels should be of one piece, without solder, and, as a precaution against fire, should be placed in tubs holding 2 or 3 in. of water. To light the brimstone, either sprinkle it with a little alcohol, or tip it with a little cotton wadding dipped in the same liquid. For each cubic meter of room, 30 grammes of sulphur are requisite, or about 1 oz. for each 40 cubic feet, all the openings being kept tightly closed for twenty-four hours.

**An Emetic in Melon Root.**—Heberger (*Rép. de Pharm.*) and Toroscíviez (*Bolletino Farm.*) describe a bitter substance, resembling emetine, extracted by means of alcohol from a watery extract of melon root; notably from the roots of wild plants. It occurs in compact, brownish masses having a shining fracture; deliquescent; it does not show reaction with acids or alkalies; imparts a color to ether and is readily soluble in alcohol, from which it may be precipitated by acetate of lead or infusion of galls. Solutions of ammonia and potassa dissolve it readily, and it may be precipitated by the addition of an acid. This precipitate is not very soluble in water. It is pungently bitter and nine centigrammes will cause vomiting.

**New Analysis of Hunyadi Spring Water.**—A new analysis of the Hunyadi Lajos Bitterquelle has just been made at Vienna by Dr. Godeffroy, professor of chemistry, and member of the Pharmaceutical Society. He gives the specific gravity of the water from this spring, at the temperature of 15° C., as 1.047, and in 1,000 parts of the water by weight he finds: Sulphate of magnesia, 31.61; sulphate of soda, 15.71; sulphate of potash, *a trace;* sulphate of lime, 1.68; chloride of sodium, 1.37; carbonate of soda, 3.12; carbonate of iron, 0.0067; carbonate of lime, 0.065; carbonate of magnesia, 0.029; silica, 0.002; alumina, 0.006 = total solid contents of 1,000 parts of the water, 53.61; This analysis, which is dated "Vienna, 6th July, 1887," appears to have been very carefully made and accurately calculated.

**The Preparation of Suppositories.**—M. Leboutte communicates to the *Bull. Soc. Roy. de Pharm.* the following method of making suppositories. He says, "I first powder in a mortar the cacao butter, previously reduced to raspings by a sharp instrument. I then incorporate the prescribed medical agents, whether they be powders like idoform, coacine hydrochlor., etc., or extracts such as belladonna, opium, and others, with the cacao butter. By the addition of a small quantity of powdered soap, and a few drops of water, the massing of these ingredients is readyly effected; a perfectly homogeneous mixture being produced which can be easily divided into portions of the required size and strength, and made up into the ordinary cone-shape." M. Leboutte further remarks that, considering the difficulty of mixing aqueous and alcoholic extracts with the melted fat, his plan possesses an additional advantage. He finds five minutes sufficient for the preparation of twelve suppositories.

**The Preparation of Antiseptic Sponges.**—The *Vereinsblatt Pfälzischer Aerzte* states that in the antiseptic process sponges of medium porosity are the most easily treated, those in which the pores are too fine being freed with difficulty from sand and shell lime. They are well dried by heat, and are freed from coarse sand by being beaten with canes, being then placed upon a coarse hair-sieve, and washed until the water runs off absolutely clear and free from sediment. The sponges are then subjected to the action of solution of permanganate of potash (1 in 1,000) for about two hours, and enough crude muriatic acid is added to cause the violet color to entirely disappear. By repeated washing with water the sponges are purified still further, until the water used in washing no longer reddens blue litmus paper. They are then well dried and placed in a solution of sublimate (1 in 1,000), where they are left 10 or 12 hours. By occasional washing with distilled water the solution of chloride of mercury is removed, and the sponges are then dried in a room free from dust (or, preferably, in a drying press), until no loss in weight takes place. For preserving the sponges, metal vessels or wide-necked glass receptacles closing tightly are indispensable.—*Lancet.*

## QUERIES & ANSWERS.

***Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer, for the information of the editor, but not for publication.***

No. 2,032.—**Solvent for Graphite** (S., Stillwater, Minn.).

"What chemical will dissove lead in a lead pencil?"

There is no lead in a lead pencil. The substance used is called "black lead," but it consists of nearly pure carbon in the form of graphite or plumbago, and is not soluble in any chemical.

No. 2,033.—**Sozodont** (R.).

According to Schaedler, the liquid sozodont is a solution of 5 parts of oil-soap [Castile Soap] in 6 parts of glycerin, 30 parts of alcohol and 20 parts of water, scented with a little of the oils of peppermint, cloves, cinnamon, and staranise, and tinted with cochineal. The powder is said to be carbonate of calcium, magnesia, and powdered orris root.

No. 2,034.—**Broquet's Still and Valyn's Treatise on Distillation** (H.).

Broquet's still for the preparation of essential oils, etc., described and illustrated in our September number, may be obtained of M. Broquet, 121 Rue Oberkampf, Paris, France, at prices ranging from 50 francs upwards, according to size.

Valyn's "Traité . . . de Destillation," etc., mentioned in the same place, may be obtained through any importing book-dealer, for instance, B. Westermann & Co., 838 Broadway, or G. E. Stechert, 828 Broadway.

No. 2,035.—**Almond Cream** (R.).

The following formula may suit you:

| | |
|---|---|
| Oil of Almonds (expressed) | 16 oz. |
| Spermaceti | 1 oz. |
| White Wax | 1 oz. |
| Oil of Bitter Almond (essential) | 5 drops. |
| Oil Rose | 1 drop. |
| Water | 16 oz. |

Saturate the Water with the essential oils, then proceed as directed in the U. S. Ph. for Unguentum Aquæ Rosæ.

No. 2,036.—**Yield of Essential Oils** (R.).

It is impossible to answer the query of our correspondent in the space available for such purpose. In order that he may be able to look up the matter himself, we would refer him to works like the following: Flückiger and Hanbury, "Pharmacographia."—Flückiger, "Pharmakognosie des Pflanzenreiches."—Piesse, "The Art of Perfumery."—Husemann and Hilger, "Die Pflanzenstoffe."

By the way, "banana oil" and "pine-apple oil" are artificially prepared compounds, and are not obtained from the fruit at all. Though both fruits have a distinct odor, which is particularly prominent in the case of the banana, the essential oil or other volatile principle upon which it depends has not been isolated.

No. 2,037.—**St. Jacob's Oil** (Toledo).

Some years ago, the composition of this proprietary article was stated to be oil of turpentine (of good quality), mixed with a little oil of rosemary and lavender, and colored with a little alkanet or red saunders. This statement, which was taken from the *Pharm. Centralhalle* (see New Remedies, 1880, 148) was declared entirely unreliable by the proprietors of the article (*ibid.*, p. 161). According to Dr. Christman (New Rem., 1882, 252), the ingredients are oil of turpentine, oil of origanum (thyme), oil of rosemary, oil of lavender, and alcohol. Another correspondent (*ibid.*, p. 316) points out that ether must be one of the constituents. According to Thiele, it is oil of turpentine perfumed with oil of thyme (Kratschmer, "Geheimmittel," p. 193). The last-named authority also states that, according to R. E. Squibb (*sic*) it is a weak alcoholic extract of aconite root, containing ether and oil of turpentine and colored red.

No. 2,038.—**Female Druggists** (S. J. D., Manchester, Ohio).

This correspondent asks: 1. "Are there many ladies employed as druggists? 2. Do they, as a class, render as good satisfaction to the trade and employers as gentlemen? 3. Have many been successful and finally gone into business for themselves?"

We have heard of female drug-clerks, but have never seen one, except as students, and in a few isolated instances, and therefore infer that, as a class, they are not sufficiently numerous to warrant comparison. There is no reason why a woman, with proper qualifications, may not succeed as well in this occupation as in any other, but few are likely to engage in the business for some time to come, for the reasons: first, it is not customary, and second, every young woman anticipates marriage and the care of a family, and is not likely to devote several years and considerable money to acquiring knowledge that she may have no subsequent use for. Men choose their vocation with the expectation of continuing in it for life and without regard to marriage. If women did the same, there would be more of them found in business for themselves.

No. 2,039.—**Photoxylin, or Mann's Gun-Cotton** (M.).

We have in a previous issue declared that the article *photoxylin*, so favorably reported on by Russian surgeons as a superior kind of gun-cotton for making surgical collodion, could not be imported by vessels carrying passengers, as it is against the shipping laws. We have, however, ascertained that it is the same article as that for which a formula was given by Mann, of St. Petersburg. We are indebted to Dr. P. Ch. Elmer, of the Scovill Manufacturing Co., 423 Broome street, N. Y., for the following account of it:

*Mann, of St. Petersburg*, prepared his gun-cotton with sulphuric acid of but moderate strength. He took 31 p. of sulphuric acid of 1.830–1.835 sp. gr., 20 p. nitrate of potash, and immersed the cotton in the mixture when 50° C., digesting it for 24 hours at 28°–31° C. The time of digesting can be extended to 5 or 6 days. When the temperature is kept at 50°, one hour will suffice.

A mixture of 33 p. sulphuric acid of 1.80 sp. gr. and 10 p. of nitrate of potash gave also good results.

Chili saltpetre (nitrate of soda) crystallizes easily in the mixture, and will not do on that account.

No. 2,040.—**Sale of Alcohol** (F. O. R.).

This correspondent, residing in the State of Massachusetts asks, the following question:

"Can alcohol be legally sold to a minor for medicinal, mechanical, or chemical purposes under the Government or State? It is done throughout the State, and I want to know whether it is legal or not."

We can answer this question only partially. So far as the U.S. license is concerned, neither the age, sex, nor other condition of the purchaser is mentioned in the law. The law refers only to the manufacturer and to the seller, either wholesale or retail. The Congressional law cares nothing about the use or disposition of the alcohol when it has legitimately been sold to a consumer who does not propose to sell it again. A State law, however, may go further. Under what is called the police powers of a State, laws may be enacted, regulating the traffic in alcohol, prescribing to whom it may or may not be sold or delivered, etc., etc. Whether there is a law in the State of Massachusetts, prohibiting the sale, or the delivery by a seller, of any alcohol to minors, is a matter you must ascertain from a person versed in your State laws. We could not undertake the responsibility of giving you a reliable opinion or statement on this subject. Only this much is certain: if there is no State law forbidding it, then there is no other law that we know of which prevents it.

No. 2,041.—**Paper Process for Medicated Waters** ("West").

This correspondent wants to know the details of the "paper" process for making medicated waters. We presume he has heard or read of one recently proposed by Rich L. Igel in the *Am. Journ. Pharm.*, which is carried out as follows:

Lay a piece of filtering-paper of suitable size upon a smooth, clean surface (pill-tile, marble-slab, plate of glass, etc.), and drop upon it (well distributed) the requisite number of drops required for the quantity of medicated water to be made. To prepare, say, 2 pints of peppermint water, a No. 33 filter, and 30 minims of the oil are required. Then fold it, and tear it into fragments; introduce them into a suitable bottle, add 1 fluidounce of distilled water, and shake until the contents are reduced to a pulpy mass. Then add several portions, each of 2 or 3 fluidounces, shaking well after each addition, and finally add the remainder of the water in one lot, shake, and throw the whole mass upon a filter. Lastly, pass enough water through the latter to make 2 pints.

In the case of a number of oils, the preceding process may be combined with a feature long practised or recommended by others, namely, to take water at a higher temperature for the first treatment of the oil, and to filter finally, when the liquid has resumed the temperature of the air. Of course, this method may be employed also without the intervention of paper, but the latter promotes the limpid and clear condition of the filtrate. In our judgment, neither the cotton, nor the paper, nor the hot water process is suitable for oils of the Citrus family. The two first-named processes are particularly objectionable, as these oils are thereby exposed in very thin layer to the air, which causes their partial oxidation, whereby they acquire a terebinthinate taste.

No. 2,042.—**Maclagan's Test for Cocaine** (Washington).

This was originally published by us in this journal; see our February number, page 22. It is the best practical test, so far known, to prove the presence, in any sample of cocaine, of any notable proportion of the amorphous alkaloid. It is as follows:

Dissolve about 1 grain of the hydrochlorate of cocaine in about 2 fluidounces of water, then add 1 or 2 drops of water of ammonia, and rub the sides and bottom of the containing vessel (beaker, etc.) with a glass rod. If amorphous cocaine is absent, well-marked striæ will appear where the rod has touched the glass, and, shortly after, flocks of a precipitate will form and slowly subside, leaving the liquid clear and bright as at first. If any notable quantity of amorphous cocaine is present, neither striæ nor precipitate will form, and the solution will remain milky for a long time, the surface having a more or less oily appearance. If the quantity is very small, it may not entirely interfere with the formation of a precipitate, but the latter is, at all events, less distinctly crystalline than in the case of the pure alkaloid.

The test, of course, depends upon the fact that ammonia isolates the alkaloid from the salt, and the pure alkaloid, under the given circumstances, has a great tendency to crystallize, which is started and promoted by the jarring or vibration caused by a stirring rod, in the same manner as bitartrate of potassium, triple phosphate, etc., etc., may be made to crystallize from a solution. The amorphous alkaloid not possessing this property, it remains suspended in the liquid, causing this to retain a milky appearance for a long time.

No. 2,043.—**Light or Bulky Iodoform** (U. S. A.).

For some time past there has been a growing demand for light or bulky iodoform for surgical practice. In former years, the small, heavy, compact crystals were preferred, but when powdered iodoform came into more extended use, it gradually became evident that much of it was wasted, or, at all events, that economy should be practised in its use, as it is an expensive article. In large public hospitals, the consumption of iodoform for dressings is extremely large, there having been periods during the current year when the quantity consumed at *one* of the large hospitals belonging to the city, in *one* week, amounted to 15 pounds. Now, it makes a great difference financially whether the iodoform is in form of small, heavy crystals (or a powder prepared therefrom and occupying but a small space), or in form of a light, bulky powder. Supposing a burn or a large, open wound is to be freely sprinkled with iodoform. By actual experiment it has been found that two pounds of the bulky kind will generally go as far, that is, cover the same amount of surface, as three pounds of the heavy. There is always more or less waste in such dressings. The more this waste can be restricted, without interfering with the efficiency of the remedy, the better it will be for the finances of the institution. A saving, where it can be made in one direction, will permit an expenditure in another direction, when it might otherwise have been impossible.

It is of great importance to the practising physician to know how far he may go in the expense of the medicines he prescribes for a patient of limited means, or how he may make a given amount of an expensive drug last as long as possible. While due economy should be practised at all times, yet in many cases particular care must be taken not to overtax the resources of a family with expensive medicines. We know of several cases where the disregard of this principle so crippled the patient and his family that the services of the medical attendant were dispensed with, in spite of his acknowledged skill. If, therefore, iodoform is to be used, and economy is one of the factors necessarily to be taken into consideration, then not only the light and bulky kind should be procured—and this may be had from most of the wholesale dealers or manufacturers—but other means should also be employed to reduce its cost, if it can be done without injury. One of the most serviceable methods is to use a mixture of equal parts of iodoform and naphthalin powdered together. In most cases, this mixture answers the same purposes as the pure iodoform, and when the latter costs $4.50 per pound, the above mixture will cost only about $2.30, which is an important saving.

No. 2,044.—**Quillaia or Quillaja** (Washington).

The question has been put to us why we appear to prefer the spelling *Quillaja* to that of *Quillaia*, the latter having been recognized by the last U. S. Pharm. Our apparent preference for the former spelling is surmised from the fact that in the printed draft of the selections from the National Formulary (see October number, p. 194; and also the original report) we have adopted this spelling. We will briefly state the reasons why we have done so.

The old Chilian name of the soap-bark tree is *quillai* or *quillay* ("bark"), either spelling being followed by different writers. Molina was the first who assigned the tree its place in the system and he gave it the name *Quillaja*. At least, we infer that Molina (whose work is at present not at our command) himself used this spelling, since Bentham and Hooker (in *Genera Plantarum*, I., 614) adopt this and quote immediately behind it "*Molina*) *Chili II.*, 298." The same is done by Baillon in his *Histoire des Plantes*, vol. I., 394, foot-note: "*Quillaja* Mol., Chil., ed. 2, 298." Also on page 471. Karsten, in his *Deutsche Flora*, p. 779 (which comprises foreign countries likewise) also spells *Quillaja* Molina. The same is done by Pfeiffer in his *Nomenclator botanicus*, II., 903: "*Quillaja* Molina, 1782." De Candolle in his *Prodromus*, II., 547 (and apparently also Jussieu, Gen. 444, though we cannot consult this author at present) also uses this spelling. Again, this is adopted by such authorities as Guibourt, Merat, and De Lens, Luerssen, Flückiger ("Pharmakognosie des Pflanzenreiches," second ed., p. 455), in Just's "Botanische Jahresberichte," (wherever it occurs; for instance, 1879, II, 91, 451, 697, etc.); and by many other writers and authorities.

So much for a justification of the spelling *Quillaja*, based upon precedents.

This spelling is also much more natural, philologically. *Quillai*, the old Chilian name, is tri-syllabic, that is, the *a* and *i* are not pronounced as a single sound, but separately. In latinizing a word of this kind, the most natural proceeding is to permit the vowel *i* to pass into the semi-vowel *j*, which in some languages is also represented by *y*.

[Properly speaking, *y* is the natural semi-vowel, corresponding to *i*, as will be familiar to all those who have a knowledge of comparative philology. In Latin, however, the letter *j* takes the place of *y* in all but foreign words].

And it is the Latin term alone that concerns us here. Had the task originally been to construct a modern *English* word from the native *quillai* by attaching the suffix *a*, the most natural way, considering the habit of the language, would have been *quillaya* (*quil-la-ya*); and this is precisely as the Latin word *quillaja* should be pronounced.

No. 2,045.—**Artificial Fruit Essences** (Several subscribers).

On page 146 of New Remedies for 1880, we gave a synoptical table of the composition of a large number of fruit essences. Various authorities, however, give different ingredients as well as proportions for some of these compounds.

| Artificial Fruit Essences. | Apple | Apricot | Banana | Black Cherry | Cherry | Gooseberry | Grape | Lemon | Melon | Orange | Peach | Pear | Pineapple | Plum | Raspberry | Strawberry |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Amyl Alcohol. | | 20 | | | | | | | | | 20 | | | | | |
| Aldehyde. | 20 | | 10 | | | 10 | 20 | 20 | 20 | 20 | 20 | | 10 | 50 | 10 | |
| Amyl Acetate. | | | | | | | | | | 10 | | 100 | | | 10 | 80 |
| Amyl Butyrate. | | 10 | 100 | | | | | | | | | | 100 | | 10 | 20 |
| Amyl Valerianate. | 100 | | | | | | | | | | | | | | | |
| Chloroform. | 10 | 10 | 10 | | | | 20 | 10 | | 20 | | | 10 | | | |
| Ethyl Acetate. | 10 | | | 100 | 50 | 50 | | 100 | | 50 | 50 | 50 | | 50 | 50 | |
| Ethyl Benzoate. | | | | 50 | 50 | 10 | | | | 10 | | | | | 10 | 10 |
| Ethyl Butyrate. | | 100 | 50 | | | | | | 40 | 10 | 50 | | 50 | 20 | 10 | 50 |
| Ethyl Formate. | | | | | | | 20 | | 10 | 10 | 50 | | | 10 | 10 | 10 |
| Ethyl Nitrate. | 10 | | | | | | | 10 | | | | | | | 10 | 10 |
| Ethyl Œnanthate. | | | | | | 10 | 100 | | | | | | | | 10 | |
| Ethyl Valerianate. | | 50 | | | | | | | 50 | | 50 | | | | | |
| Glycerin. | 40 | 40 | 80 | | 30 | | 100 | 20 | 30 | 100 | 50 | 100 | 80 | 80 | 40 | 20 |
| Oil Lemon. | | | | | | | | 100 | | | | | | | | |
| Oil Orange. | | | | | | | | | | 100 | | | | | | |
| Oil Wintergreen. | | | | | | | 10 | | | 10 | | | | | 10 | 10 |
| Persico Essence. | | 10 | | 20 | 10 | | | | | | 50 | | | 40 | | |
| Alc. Sol. Benzoic Acid. | | | | 20 | 10 | 10 | | | | | | | | | | |
| Alc. Sol. Oxalic Acid. | 100 | | | 10 | | | | | | | | | | | | |
| Alc. Sol. Succinic Acid. | | | | | | 10 | 30 | 10 | | | | | | | 10 | |
| Alc. Sol. Tartaric Acid. | | 10 | | | | 50 | 50 | 100 | | 100 | | | | | 50 | |

In each of these cases, the several figures indicate the number of parts by *measure* which are to be added to 1000 parts by *measure* of 90-per-cent alcohol. The last 4 columns give the proportion of alcoholic solution of 4 organic acids. These solutions are to be prepared by dissolving the respective acids in cold alcohol (90%) to saturation.

Fruit essences made their first appearance on the market about the year 1851; when a number of "oils," respectively labelled "pear-oil," "apple-oil," "banana-oil," etc., were exhibited at the World's Exhibition in London. Prof. A. W. Hofmann examined these, and ascertained that they were solutions of ethers of ethyl and amyl in alcohol.

The above proportions are given on the authority of Kletzinsky, in *Dingler's Polyt. Journal*, 180, 77.

No. 2,046.—**Precipitate in Tincture of Iron** (C. F. D.) This subscriber writes:

"Some time ago I prepared *Liquor Ferri Chloridi*, U. S. Ph. 1880, and a few days after preparing the tincture from this liquor, I found a dense precipitate in both the liquor and the tincture. I added a small quantity of hydrochloric acid to the liquor which dissolved the precipitate. What was the cause? Yesterday I had a prescription to dispense containing:

| | |
|---|---|
| Quininæ Sulphat. | ʒ ss. |
| Tinct. Ferri Mur | ʒ ij. |
| Glycerini | ℥ ss. |
| Aquæ | q. s. ad ℥ ij. |

"The quinine was dissolved in the tincture and water, and the glycerin added. To-day the mixture had acquired a light-brown color and contained a precipitate. What explanation can be given for this?"

The explanation is undoubtedly this, that when the solution of chloride of iron was prepared, an insufficiency of nitric or hydrochloric acid was used, whereby the formation of an oxychloride was brought about. Possibly our correspondent employed acids which were considerably below the strength of those which the formula of the U. S. Ph. intends to be used. If so, he should have used a proportionate quantity more. Again, it is just possible that he omitted to add the second portion of hydrochloric acid (see U. S. Ph., p. 197, line 4). We have had considerable experience in superintending the process as carried on by others, chiefly those whom we have ourselves instructed, and we have found it a curious fact that the most common error committed by those who are not well practised is the omission of the second portion of hydrochloric acid, if they attempt to execute the process from memory. When the error has once been pointed out to the person in question, he is not likely to commit it again. The U. S. Ph. furnishes a test by which the presence of oxychloride may be demonstrated. Namely, on diluting 3 parts of that solution with distilled water to 100 parts, and boiling in a test-tube, the liquid should remain clear.

The formation of an oxychloride is generally due to the fact that there is not enough hydrochloric acid present to combine with all the ferric radical produced from the ferrous previously present. An insufficiency of nitric acid may, however, also have a share in the reaction, as the ferrous chloride remaining unoxidized will gradually be oxiddize by contact with the air, and the same deficiency of hydrochloric acid is then the cause of trouble. The oxychloride may be regarded as a compound of ferric oxide $Fe_2O_3$, and ferric chloride $Fe_2Cl_6$, in such a way that the solution of the latter salt holds the former in solution until there is a molecular disturbance. Dialyzed iron may be regarded as a combination of this kind, for instance, but in this case the proportion of oxide of iron held in solution is quite small. When a solution or tincture of iron containing oxychloride is exposed to air, or much shaken, or mixed with other liquids, it usually deposits the dissolved ferric oxide quite promptly. And this becomes after a while quite difficultly soluble.

The remedy, therefore, is to prepare the original solution with acid of full strength, or with a larger proportion of acids, if they are weaker.

**No. 2,047.—Hydroxylamine Hydrochlorate (Photo.).**

A brief notice of the substance, so far as its photographic use is concerned, will be found in the Report on Commercial Drugs, etc., on page 209 of this number.

Regarding its nature, it may be regarded as a compound of $NH_3$ with hydroxyl OH. Its real nature or molecular constitution has not been fully made out, as it has never yet been obtained in a free state, but only in combination with acids. Lossen was the first who observed and studied it.

The preparation of a perfectly pure salt of hydroxylamine is rather an expensive operation. For commercial purposes it will probably be sufficient to obtain a product —preferably the hydrochlorate—which shall contain about 90 per cent of the pure salt. This may be obtained in the following manner:

Nitric acid, of spec. grav. 1.400, is boiled for some time with nitrate of urea, 15 Gm. for every liter of the former, the object being to remove any nitrous acid that might be present. 400 Gm. of the purified nitric acid, when cooled off, are mixed with 300 Gm. of absolute alcohol and 300 Gm. of nitrate of urea, and then subjected to distillation from a tubulated retort. When about one-half to two-thirds have passed over, a stoppered funnel is fitted in the tubulure of the retort, and a freshly prepared mixture of 400 Gm. of nitric acid and 300 Gm. alcohol gradually allowed to drop into the retort, in proportion as its contents distil over. The resulting nitrate of ethyl is then washed with water, and is now ready for being reduced to hydroxylamine.

For this purpose, several large flasks are charged each with 120 Gm. of this ether, 400 Gm. of granulated tin, and 800 to 1,000 C.c. of hydrochloric acid of spec. gr. 1.190, and 3 times the volume of water. Reaction soon begins of its own accord, and may be promoted by repeated agitation, without the application of heat. The contents of all the flasks are then poured together, diluted with at least an equal volume of water, the tin removed by hydrosulphuric acid, the sulphide of tin filtered off, and the filtrate evaporated to a syrupy condition. The liquid now contains hydrochlorate of hydroxylamine, chloride of ammonium, some chloride of iron (derived from the tin, which usually contains this metal, and possibly some others), a little chloride of calcium, etc. (from the vessels), and hydrochloric acid. The syrupy liquid is *well cooled* and then supersaturated with soda, which causes the precipitation of all heavy metals, calcium, etc. These having been removed by filtration, the filtrate is cautiously acidulated with hydrochloric acid and concentrated, when it will finally leave behind a mixture of chloride of sodium, chloride of ammonium, and hydrochlorate of hydroxylamine. This is extracted with hot alcohol, which leaves behind all the chloride of sodium and most of the chloride of ammonium. The hot alcohol solution finally furnishes crystals of hydrochlorate of hydroxylamine containing about 90 per cent of the pure salt, the balance being chloride of ammonium. The latter may be removed by means of platinic chloride, which forms a double salt with ammonium, but not with hydroxylamine salts. But, as stated above, this is an unnecessary refinement when the substance is to be used for technical purposes only.

The reaction between nitrate of ethyl and the reducing agent hydrogen (derived from the action of hydrochloric acid upon the tin) may be expressed thus:

$$\underset{\text{nitrate ethyl}}{C_2H_5NO_3} + \underset{\text{hydro-gen}}{3H_2} = \underset{\text{hydroxyl-amine}}{NH_2OH} + \underset{\text{alcohol}}{C_2H_5OH} + \underset{\text{water}}{H_2O}$$

**No. 2,048.—Hypophosphorous Acid (E. A.).**

Some years ago, we published a note on this subject in answer to a query (see NEW REM., 1883, page 281). We pointed out that the commercial so-called 50% acid was a very impure article, as it contained a good deal of calcium, as well as oxalic or sulphuric acids. We there gave a method by which a pure acid may be prepared, namely, by decomposing hypophosphite of calcium with sulphuric acid in the presence of water, and enough alcohol to precipitate all of the calcium sulphate. Our formula furnished a weak acid as the first product, which was afterwards directed to be concentrated at a temperature not exceeding 160° F. Since the formula directs the *whole* of the generated hypophosphorous acid to be recovered, by washing the precipitate, etc., and the washings materially increase the volume of liquid, necessitating a larger quantity of alcohol to precipitate the sulphate of calcium, we have since then modified the process so as to do away with this drawback.

We now use such quantities of hypophosphite, water, acid, and alcohol, that the liquid resulting from the reaction, and still mixed with the insoluble precipitate, contains the desired percentage of the acid. On standing, the precipitate will collect at the bottom, and the liquid may be poured off almost completely. If the acid is required immediately, and the presence of alcohol is not objectionable, it may be used at once. What remains within the pores of the precipitate is simply thrown away. The liquid which is separated is weighed, then subjected to a moderate heat until the alcohol is evaporated, and the original weight restored by distilled water.

When a 10% acid, or a still stronger acid is wanted, we have found that it is not advantageous to start from the hypophosphite of calcium. In the first place, this salt requires over 6 parts of water for solution; hence, to prepare a concentrated hypophosphorous acid from it, it would be necessary to decompose it with sulphuric or oxalic acids in the presence of less water than would be sufficient to dissolve the salt. In fact, considerably more than one-half of the salt would be present as powder when the sulphuric or oxalic acids come in contact with it. As each fragment of salt becomes instantly surrounded with an insoluble layer of sulphate or oxalate of calcium, there is a possibility that the whole of the hypophosphite may not be decomposed, though this will probably happen only under rare circumstances.

The standard process for making pure hypophosphorous acid, adopted by those who have studied this body, has, of course, been to decompose hypophosphite of barium with sulphuric acid. But this salt is not generally available, and being used only for scientific purposes, is comparatively expensive.

We have, however, at our command hypophosphite of potassium, and this may be decomposed by tartaric acid in the presence of alcohol. This process we find to be the most serviceable, and to yield an unexceptionable product, containing only traces of bitartrate of potassium. The details are as follows:

### *Acidum Hypophosphorosum Dilutum.*

### Diluted Hypophosphorous Acid (10%).

| | | |
|---|---|---|
| Hypophosphite of Potassium | 208 | parts. |
| Tartaric Acid, in powder | 300 | " |
| Distilled Water | 588 | " |
| Diluted Alcohol | 600 | " |

Dissolve the Hypophosphite of Potassium in the Distilled Water, and the Tartaric Acid in the Diluted Alcohol. Mix the two solutions in a flask, cork the latter well, and set it aside in a cold place for twelve hours, occasionally agitating the contents. Then carefully decant the liquid into a funnel, the neck of which has been stopped with a pellet of absorbent cotton. Weigh the filtrate, which contains 10 per cent of hypophosphorous acid, in a tared capsule, and evaporate the alcohol by means of a water-bath, or by exposure in a drying oven, at a temperature not exceeding 60° C. (140° F.). Then allow the liquid to cool, and add enough Distilled Water to restore the original weight of the filtrate. Preserve the product in well-stoppered bottles.

A 10-per-cent hypophosphorous acid thus prepared has a specific gravity of about 1.061 at 15° C. (59° F.).

The filtrate, if desired, may be evaporated so as to furnish a 50% acid, or even a still more concentrated acid.

The stronger the acid is, the more care must be taken during the heating. Organic matter or any oxidizing agents must be carefully kept from contact with it. If it is overheated, in free contact with air, it is apt to split into phosphoretted hydrogen (which may take fire) and phosphoric acid. Even at a moderate heat, when hypophosphorous acid is evaporated to a syrupy condition, in contact with air, it is slowly oxidized to phosphorous acid, which may be at once recognized by its peculiar odor.

This decomposition of hypophosphorous acid may be prevented by avoiding contact with air. For instance, the filtrate obtained by the above-described process may be deprived of alcohol by distillation in a flask, and when the alcohol has been driven over, the residuary liquid may be further concentrated by distillation, in which case it is advisable to fit the condenser tightly to the receiver, and to connect the latter with an aspirator or filter-pump, in order to cause the liquid to boil under diminished pressure.

**No. 2,049.—Oleate of Manganese; Oleate of Zinc** ("Laboratory").

Our correspondent asks how the hardening of metallic oleates may be prevented. He finds that, on keeping, these oleates are apt to become brittle and also often acquire a deeper tint, especially near the edges. He also wants us to give proportions for preparing them, and a working formula.

So far as we know, there is no other way to prevent the hardening, except to put up the oleates, shortly after being prepared, in air-tight vessels. If the preparations are required to fill prescriptions, or for use by known customers, it might be possible to advise the addition of a little petrolatum, which is an effective preventive of the "drying-up." We are in the habit of preparing, for physicians' use, oleates containing 25 and 50 per cent of petrolatum. These are unctuous compounds of great smoothness and homogeneousness.

As to working formulæ, we can advise nothing better than the plan recommended by Parsons, to start with Castile soap as the most available form of commercial oleate of sodium, and sulphate of zinc and sulphate of manganese may be used for the respective metals.

The reactions in either case are:

1. $MnSO_4.4H_2O + 2NaC_{18}H_{33}O_2 = Mn(C_{18}H_{33}O_2)_2 + Na_2SO_4 + 4H_2O$

| manganese sulphate | sodium oleate | manganese oleate | sodium sulphate | water |
|---|---|---|---|---|
| 222 | 608 | 616 | 142 | 72 |

and

2. $ZnSO_4.7H_2O + 2NaC_{18}H_{33}O_2 = Zn(C_{18}H_{33}O_2)_2 + Na_2SO_4 + 7H_2O$

| zinc sulphate | sodium oleate | zinc oleate | sodium sulphate | water |
|---|---|---|---|---|
| 286.9 | 608 | 626.9 | 142 | 126 |

Of course, the figures express the molecular weights, or the proportions in parts by weight.

Now, Castile soap is not pure oleate of sodium, but it is not far from it. Besides, when fresh, it contains considerable water. Hence, either the whole Castile soap to be employed should be dried, or a good average sample should be taken, the quantity of water estimated in it (by drying to a constant weight) and allowance be made, in the calculation, for the water present.

To prepare 1 pound. each, of oleate of manganese and of oleate of zinc, would require theoretically (that is, if the oleate of sodium were pure), in the one case

2,523 grains of crystallized sulphate of manganese
and 6,907 grains of oleate of sodium, and in the other case
3,204 grains of crystallized sulphate of zinc
and 6,788 grains of oleate of sodium.

As the Castile soap is not quite pure, and a small excess can do no harm, as it is washed out again, the following proportions will answer in practice.

1. 5 parts sulph. manganese.
   18 " Castile soap.
2. 10 " . sulph. zinc.
   22 " Castile soap.

In either case, the substances are dissolved to a *dilute* solution, the Castle soap in warm water. Then pour the soap solution into the other, warm until the oleate separates, then wash with warm, lastly with cold water, express moisture, and put in proper vessels.

◆

**Compound Licorice Powder**, according to Mr. Leo Eliel, is improved in flavor and appearance by using Russian peeled licorice instead of the ordinary powder.

French papers announce that the Government of Uruguay have prohibited from Sept. 11th the importation of alimentary and pharmaceutical preparations containing salicylic acid.

"The Brisbane correspondent of the *Chemist and Druggist of Australia* names the travellers of two English drug houses who had been visiting Queensland, both of whom, he says, 'carried samples of American printing matter.' How is this? Labor and machinery cost 33 per cent more in America than in England, and paper is 20 to 25 per cent dearer there. And yet English firms find it advantageous to sell American labels to Australian buyers!"—*Chemist and Druggist.*

Perhaps the American labels are enough better to be worth the difference.—Ed. Am. Dr.

## BIBLIOGRAPHY.

American Medicinal Plants. An illustrated and Descriptive Guide to the American Plants used as Homœopathic Remedies; their History, Preparation, Chemistry, and Physiological Effects. By Charles F. Millspaugh, M.D. Illustrated by the Author. Boericke Tafel, New York and Philadelphia.

Part VI., Containing Nos. 26 to 30, completes this work. Altogether there are 180 plates which, with the text, will make two large volumes. An appendix of 65 pages contains an elaborate glossary, a list of the authorities consulted, a bibliographical index to the references in the text, and an index to the subject matter.

We have before expressed our admiration of the work and our appreciation of its value to pharmacists of this country, and we congratulate both the author and the publishers upon having produced a work which is creditable to themselves and to the scientific literature of this country.

A Manual of the Physical Diagnosis of Thoracic Diseases. By E. Darwin Hudson, Jr., A.M., M.D., Professor of General Medicine and Diseases of the Chest in the New York Polyclinic, etc. New York: William Wood & Co., 1887, pp. 150, 8vo.

The author of this work had for several years been actively engaged in teaching graduated physicians, and was familiar with their especial requirements in the way of instruction in diagnosis of chest diseases. The information given by the work is largely arranged in tabular form, so that comparison is facilitated—a matter of importance when it becomes desirable to aid the memory. Advantage is taken of numerous diagrammatic and other forms of illustration to make the text more comprehensible.

A Laboratory Manual of Chemistry, Medical and Pharmaceutical, by Oscar Oldberg, Pharm.D., Professor of Pharmacy and Director of the Pharm. Labor., and John H. Long, Sc.D., Professor of Chemistry and Director of the Chem. Labor., Illinois College of Pharmacy, Northwestern University. (Illust.) 8vo. Chicago, 1887, pp. 435.

This work proceeds upon a plan which combines various meritorious features possessed by other treatises. It is specially designed as a companion in laboratory work, beginning with concise and practical chapters on the properties and analytical relations of the elements and their principal compounds, and, in connection therewith, giving instructions in chemical manipulations, following this up with a section on "Synthetical Chemistry," in which the preparation, chemistry, assay, and tests of all the official and many non-official chemicals is treated of. Next follows a section on "Analytical Chemistry," comprising a course in inorganic qualitative and in organic analysis of officinal substances.

The concluding chapter treats of Urinary Analysis, which is supplemented by 5 plates containing illustrations of normal and abnormal constituents of urine.

The work has evidently been prepared with much care, and shows the familiarity of the authors with the difficulties under which beginners in laboratory work are apt to labor, for many of these difficulties are removed by explanatory remarks and chemical equations. The book will be found useful, not only as a text-book under a teacher, but also for self-study.

Pharmaceutical Problems and Exercises in Metrology, Chemistry, Pharmacy, and Pharmaceutical Nomenclature. By Oscar Oldberg, Pharm.D., Professor of Pharmacy in the Illinois College of Pharmacy, Northwestern University. 8vo. Chicago, 1887.

This is an excellent little book and will be of great service to students, if they will carefully work out the answers and the solutions of the problems. The selection of questions is very judicious and covers the ground very effectively, so far as the curriculum of a school of pharmacy extends.

Plant Chemistry as illustrated in the Production of Sugar from Sorghum. By Helen C. De S. Abbott (Reprinted from the Proceedings of the Alumni Association of the Philadelphia College of Pharmacy), pp. 14, 8vo.

Plant Analysis as an Applied Science. By Helen C. De S. Abbott (Reprinted from the Journal of the Franklin Institute), pp. 35, 8vo.

*SUPPLEMENT TO AMERICAN DRUGGIST, DECEMBER, 1887.*

THE ALCHEMIST.

PAINTING BY A. ADAMS.

American Druggist

Vol. XVI. No. 12. NEW YORK, DECEMBER, 1887. Whole No. 162.

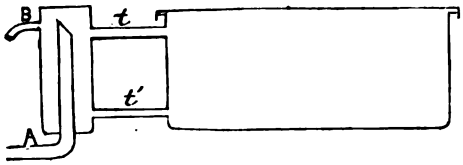
## A NEW CONSTRUCTION OF LIEBIG'S CONDENSER.

E. Hart recommends a new method of constructing a Liebig's condenser, which has the advantage of simplicity and considerable flexibility. As will be seen from the illustration, it consists of two plain glass tubes, connected together by a piece of stout rubber tubing *b*. Through a hole in this a small piece of glass tubing, with a shoulder fused at the inner end, is pushed, which serves for the passage of water.—*Journ. Anal. Chem.*

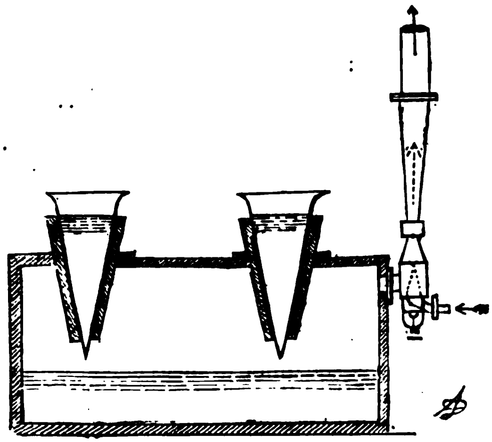
## A VACUUM FILTER FOR SYRUPS.

The filtering apparatus here shown is constructed on the same principle as that described on page 163 of our September number, but it is much more simple. The conical funnels are so constructed that the larger part of the available filtering surface of the filters is left free and unobstructed. The vacuum, or partial vacuum is obtained by a jet of steam passing upwards into an expanded pipe, which afterwards curves over so as to carry off the condensed water. The tank may, of course, be constructed of any desired shape or dimensions, and may be provided with faucets for drawing off the filtrate when required. Care must be taken that the filters are always kept full, so as not to admit air through the filtering cloth into the interior of the tank.

This filtering apparatus is made by Koerting Bros., of Hannover, or may be obtained through most manufacturers of so-called steam injectors.



Constant level water-bath



Vacuum filter for syrups.

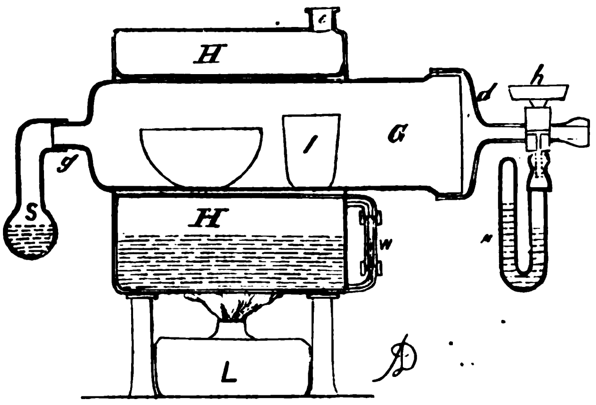
## CONSTANT LEVEL WATER-BATH.

A correspondent of *La Nature* writes that he prefers the form of water-bath shown in the cut. This does not differ essentially from other constant level water-baths, except that the tube *A* is used for admitting fresh water by connecting it with the water conduit. *B* serves as an overflow, and two tubes *t* and *t'* are used for establishing communication with the water-bath proper.

[*Note by Ed. Am. Drugg.*—Both in the forms of constant level water-baths usually sold by dealers, and in that here illustrated, there is this disadvantage, that they can never be set flat upon a table, as the lateral attachment always projects more or less beyond the level of the bottom of the bath. It usually has to be set at the edge of the table, so as to let the attachment project over the side. Sometimes it is also quite inconvenient to place a bath of this kind squarely over a gas stove, because the projection is often so close to the body of the bath, that the centre of the latter cannot be brought over the centre of the stove. This drawback may be wholly avoided by making the tube *A* enter from the top instead of the bottom. The fresh water will then flow in at the bottom and become heated at once. The overflow may remain where it is shown.]

## A NEW FORM OF SIPHON.

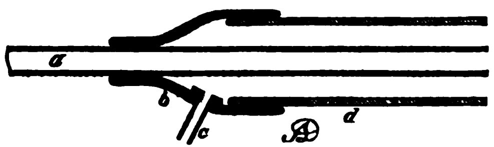
The siphon here described is recommended by E. Fabry (18, rue des Dominicains, Nancy, France), for use in siphoning off wine, which has deposited a sediment, from one bottle into another. The principle of its construction is, of course, not new, yet as it is not operated by blowing with the mouth, but by means of a piston, it may serve many other purposes, either in the form described or some modification of it. Fig. 3 shows how the piston operates. Fig. 2 shows the position of the piston at starting. When the level of liquid in the two bottles is alike, the bottle *A* must be set lower. This may be done in the beginning if the outer leg of siphon be made longer, which may be easily done by attaching a piece of pure rubber tubing.—After *La Nature*.



Schoop's vacuum drying apparatus.

## A VACUUM DRYING APPARATUS.

Many substances require protracted heating to deprive them of water: and the long application of heat is in many cases injurious. Drying in a vacuum removes this drawback, but the time required for drying is then often extended for weeks. Evidently, a combination of a high temperature with a vacuum appears to be most advantageous, and this is the principle upon which the apparatus of Paul Schoop is constructed.



Hart's modified Liebig's condenser.

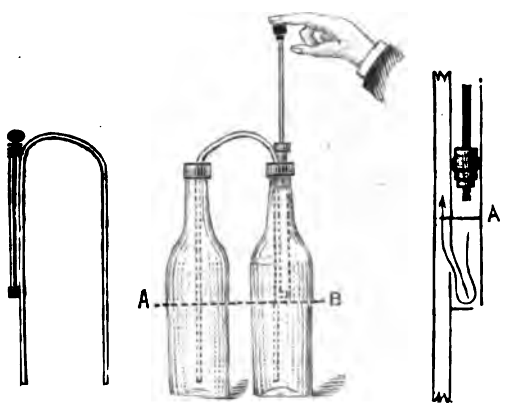


Fig. 1. Fig. 2. Fig. 3.

Fabry's siphon.

It consists of a wide glass tube *G*, forming the drying oven proper, and a copper box *HH*, the glass tube passing through a centrally placed copper tube. (The figure represents a cross section through the centre). The copper box is charged with a suitable quantity of some liquid, the boiling point of which corresponds to the temperature at which it is desired to dry the substance. At *w*, a gauge is attached by which the level of the liquid in the box may be recognized. At *e*, there is an orifice in the upper part of the box, which is to be connected with an upright condenser, so as to cause the return of the vapors of the liquid. When the apparatus is to be used, and the temperature of say 100° C. is required, water is poured in the box and heat applied. The glass tube *G* (which may have any desired bore, but which is described by the author as being usually chosen of a diameter of 50 millimeters, or about two inches, is pushed through the central tube of the box, and to its near end *g*, the glass vessel *S* hermetically attached. This vessel contains concentrated sulphuric acid. The vessels containing the substances to be dried having then been inserted in the glass tube, it is closed by a hermetically fitting glass cap *d*, to which a three-way stop-cock and barometer is attached. The stop-cock is then connected with the air pump and the air exhausted. It will then usually require only about two hours to dry the substances completely. Care must be taken, when admitting air, to do this gradually. The sulphuric acid vessel is purposely placed at the opposite end of the apparatus, because the interior still contains minute traces of aqueous vapor even at the low pressure existing within the apparatus, and this minute quantity is afterwards driven over to the sulphuric acid by the inflowing air. Of course, the latter should be free from moisture.—After *Rep. f. anal Chem.*, No. 34.

### Note on Scutellaria, its Constituents and Preparations.[*]

BY HENRY A. HOWARD.

THE author, following the usual plan laid down for the analysis of plants, found the officinal Scutellaria lateriflora, or scull cap, to yield the following constituents:

1. To petroleum ether, boiling at or below 45° C.: Wax, chlorophyll, volatile oil.
2. To ether: chlorophyll.
3. To absolute alcohol: tannin, resin.
4. To water: extractive matter, gum, glucose, an acrid volatile principle.

As the officinal fluid extract of Scutellaria was observed always producing a precipitate on standing, it was first desirable to know whether this precipitate contained any of the active constituents or not. Accordingly, a portion of the fluid extract was placed in a freezing mixture of ice and salt for several hours. The moist precipitate formed under these circumstances was found to have a very acrid and biting taste. When dried on a water-bath, the acrid taste disappears, showing that the acrid principle is volatile. It appears, therefore, that the fluid extract should be made with a different menstruum. The author recommends one consisting of

| | |
|---|---|
| Alcohol | 70 parts |
| Glycerin | 10 " |
| Water | 20 " |

to be followed, after this has been used upon 100 parts of drug, by one containing

| | |
|---|---|
| Alcohol | 70 parts |
| Water | 30 " |

At least, a fluid extract prepared by the author with these menstrua had not formed any precipitate after standing for several months.

*Scutellarin*, the eclectic resinoid of the market, is a mixture of indefinite composition, variously prepared by precipitating it from alcoholic tinctures or aqueous infusions, with solutions of alum.

### The Precipitate in Fluid Extract of Podophyllum.[*]

BY HERMAN HEINRITZ.

MR. HEINRITZ gives the results of an examination of the precipitate usually found in Fluid Extract of Podophyllum, from which we select the following data:

The main object being to examine the precipitate for "resin of podophyllum," the following method was adopted, upon the advice of Prof. J. U. Lloyd. The precipitate was mixed with 5 times its volume of cold water, the mixture well stirred, set aside one hour, then filtered and the residue on the paper dried in a cool place and weighed. It was then treated with cold alcohol so as to dissolve all that was possible, the alcoholic solution evaporated to a thin syrup and this poured into 10 times its volume of cold water. The precipitate was collected and dried in a cool place. This is "resin of podophyllum" of a light-brown (not yellow) color, almost entirely soluble in dilute ammonia, soluble in alcohol, and to a large extent (75–95%) soluble in ether.

The root of podophyllum is known to yield between 1.08 and 5 per cent of this resin.

The fluid extracts which the author examined were found to contain between 1.9 and 3.85 per cent of the resin.

The precipitate in the fluid extracts turned out to contain between 1.53 and 10 per cent of its own weight. Besides, it contained, in one sample, 0.75% podophyllotoxin, 0.66% podophyllic acid, 0.306% of gum, and some gallic acid, albumen, fat and oil, no tannin, and a little picropodophyllin.

The phodophyllotoxin, etc., was determined in the following manner (after Podwissotzki). Six grammes of the precipitate were macerated during six days in chloroform, which acquired a light brownish color. This was evaporated to a syrupy condition and poured into stronger ether, whereby a whitish-gray precipitate was produced which corresponds to Podwissotzki's podophyllic acid. The ethereal solution was filtered into 10 times its bulk of petroleum ether, whereby podophyllotoxin should be precipitated. The substance thus obtained by the author was yellowish-white. It was tested by being dissolved in chloroform, mixing the solution with petroleum ether, and warming. It then separated in flocks. Tincture of chloride of iron should not color it green in alcoholic solution. The author's sample, however, assumed this tint. Yet it was completely soluble in ammonia; on adding ammonia in excess, then ether, and allowing the ether to evaporate, picropodophyllin crystals were deposited.

### Animal Tannin.

THE corn weevil (*Calandra granaria*), a coleopterous insect of about three millimeters in length and of a maroon-brown color, had already in 1810 been found, by Penunt, of Lyon, to contain gallic acid. M. Villon has recently examined the insect again—in the course of a systematic search after animal tannins—and found that the insect contains pure tannin to the extent of about three per cent of its own weight.—*Bull. de la Soc. des Elèves de M. Fremy*, and *Chem. News*.

[The mere grinding up of a lot of insects, and the discovery of tannin in the magma, does not prove that the tannin is a natural product of the animal organism. It would be necessary to prove that no form of tannin has been appropriated by the insects from other sources. —ED. AM. DRUGG.]

### Notes on Coated Pills.

MR. EUGEN DIETERICH makes the following remarks on coated pills as an introduction to the chapter on pills in his "Neues Pharmaceutisches Manual":

*Gelatin-coated Pills.*—The coating with gelatin is accomplished most quickly in the following manner: Introduce 100 dry pills into a rather large warm capsule, containing 2.5 Gm. (ab. 38 grains) of a warm 10-per-cent solution of gelatin, roll them about in this as brief a time as possible, but so that the mass is uniformly distributed over them, and then transfer them to a flat plate of tinned iron, rubbed over with a few drops of oil, taking care that the pills do not touch each other. Allow them to dry during a few hours by exposure to the ordinary temperature, and then repeat the manipulation. [This is *one* way to coat pills; but, as our readers are aware, there are various other ways, and some of the latter much more expeditious than the above.]

*Cacao-Coated Pills.*—Introduce 1 Gm. of melted butter of cacao into a uniformly warmed, rather large capsule, and roll 100 dried pills in it until they are uniformly coated. They are then transferred to a cool place, and when they are dry, the process is repeated. The capsule should be as large as possible, so that the pills may be rolled about quickly and in large circles. The hardening of the coating is recognized from the fact that the pills, which at first cohered together, separate from each other.

*Resin-coated Pills.*—A suitable resinous coating may be prepared from:

| | |
|---|---|
| Mastic | 5 parts |
| Benzoin (Sumatra) | 5 " |
| Absolute Alcohol | 10 " |
| Ether | 80 " |

One hundred dry pills are put in a large porcelain capsule, 5 Gm. (75 grains) of the preceding solution are added, and the pills rotated as rapidly as possible until they separate from each other. They are then dried for half an hour by exposure to air, and the operation then repeated. It is a great mistake to make the resinous solution contain more resin than that above named because it will thereby acquire too much adhesiveness, while with a more dilute solution the pills will come finished from the capsule. It is, however, necessary to repeat the operation.

*Collodion-coated Pills.*—These are prepared in the same manner as the preceding. The collodium must be diluted with twice its volume of ether, and the operation of coating repeated.

*Sugar-coated Pills.*—Large quantities must be coated by suitable machinery. Small quantities may be coated in the following manner. Put 100 dry pills into a large capsule, add 1 Gm. (ab. 16 grains) of a mixture of equal weight of mucilage and water and roll them about so as to moisten them. Then gradually add portions of a mixture of

| | |
|---|---|
| Sugar | 40 parts. |
| Starch | 40 " |
| Acacia (whitest) | 20 " |

and roll them about until they cease to adhere to each other. Repeat this process, then transfer the pills to another capsule containing 0.5 Gm. of powdered talcum, and continue rolling them about until the coating becomes glossy. Finally, dry them by exposure to air, and rub the dry pills with a white cloth so as to remove all superfluous talc. [The latter object is best attained by rolling he pills in a fine brass-wire sieve.—ED. AM. DR.]

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[*] Abstract of a thesis presented to the Mass. College of Pharmacy, 1887.

## A STILL FOR ETHEREAL OILS.

G. MUERRLE is the designer of the still here illustrated. A copper boiler, *A*, provided with water gauge, is placed in the round, iron stove *O*. The steam generated in *A* passes through the tube *E* into the cylindrical vessel *B*, which is filled with the vegetable material from which the essential oil is to be extracted, and the steam saturated with the oil passes over through *b* into the condenser. The condensed liquid collects in the receiver *B*, where the essential oil (if lighter than water, as is usually the case) will float on the surface, while the water will form a layer below. When the receiver becomes full, the excess of saturated water flows over into the funnel, and passes back in the still. After the distillation is completed, the vessel *B*, together with its connecting tube *b*, is unclamped and may be lifted off by means of the pulley *K a a a*. The perforated bottom plate *s s* is then removed, the vessel emptied, and freshly charged. During the emptying and filling, the vessel is turned upside down. In order to make it stand steady in this position, three iron legs, *f f*, are affixed to it. If two such cylinders are at disposal, one of them may be emptied and filled while the other one is connected with the still, and its contents exhausted by steam.—*Pharm. Zeit.*

### Specific Gravities of Watery Solutions of Glycerin.

W. W. J. NICOLS reports in the *Pharmaceutical Journal* the following results of careful experiments to establish the specific gravities of various percentages of glycerin with water. The solutions were made in weighed stoppered bottles, a portion of glycerin being introduced and weighed. The requisite weight of water, calculated for required percentage, was then added by weight and the whole mixed; the weighings were all made to the nearest half milligramme. The error in composition varied from ±.0001, *i. e.*, 0.01 per cent for the 10 per cent solution, to ±.00005, *i. e.*, 0.005 per cent for the 50 per cent solution. The specific gravities were determined in Sprengel tubes at a temperature of 20° C. in a constant temperature bath; the temperature never varied more than 0.05° C., and the error in density was less than ±0.00002 per cent. The specific gravities are therefore reliable to the *fourth* decimal place at least.

[In the following table, the percentages accompanied with an asterisk (*) were obtained by the method above described, the intermediate percentages having been calculated therefrom.]

Specific gravity t° = 20° C. = 68° F. Water at 20° = 1.

| P. c. | Specific gravity. | P. c. | Specific gravity. | P. c. | Specific gravity. | P. c. | Specific gravity. |
|---|---|---|---|---|---|---|---|
| *100 | 1.26348 | 75 | 653 | *50 | 1.12831 | 25 | 166 |
| 99 | 091 | 74 | 381 | 49 | 558 | 24 | 1.05908 |
| 98 | 1.25832 | 73 | 109 | 48 | 285 | 23 | 651 |
| 97 | 572 | 72 | 1.18837 | 47 | 013 | 22 | 394 |
| 96 | 312 | 71 | 565 | 46 | 1.11741 | 21 | 139 |
| 95 | 052 | *70 | 293 | 45 | 469 | *20 | 1.04884 |
| 94 | 1.24790 | 69 | 020 | 44 | 198 | 19 | 630 |
| 93 | 526 | 68 | 1.17747 | 43 | 1.10927 | 18 | 377 |
| 92 | 259 | 67 | 474 | 42 | 657 | 17 | 124 |
| 91 | 1.23990 | 66 | 201 | 41 | 387 | 16 | 1.03872 |
| *90 | 720 | 65 | 1.16928 | *40 | 118 | 15 | 622 |
| 89 | 449 | 64 | 654 | 39 | 1.09850 | 14 | 373 |
| 88 | 178 | 63 | 380 | 38 | 583 | 13 | 126 |
| 87 | 1.22907 | 62 | 107 | 37 | 317 | 12 | 1.02880 |
| 86 | 636 | 61 | 1.15834 | 36 | 051 | 11 | 635 |
| 85 | 365 | *60 | 561 | 35 | 1.08786 | *10 | 391 |
| 84 | 094 | 59 | 288 | 34 | 522 | 9 | 148 |
| 83 | 1.21823 | 58 | 015 | 33 | 258 | 8 | 1.01905 |
| 82 | 552 | 57 | 1.14742 | 32 | 1.07994 | 7 | 664 |
| 81 | 281 | 56 | 469 | 31 | 731 | 6 | 423 |
| *80 | 010 | 55 | 196 | *30 | 469 | 5 | 184 |
| 79 | 1.20739 | 54 | 1.13923 | 29 | 207 | 4 | 1.00945 |
| 78 | 468 | 53 | 650 | 28 | 1.06946 | 3 | 708 |
| 77 | 197 | 52 | 377 | 27 | 685 | 2 | 471 |
| 76 | 1.19925 | 51 | 104 | 26 | 425 | 1 | 235 |

### Iodine in Candles.

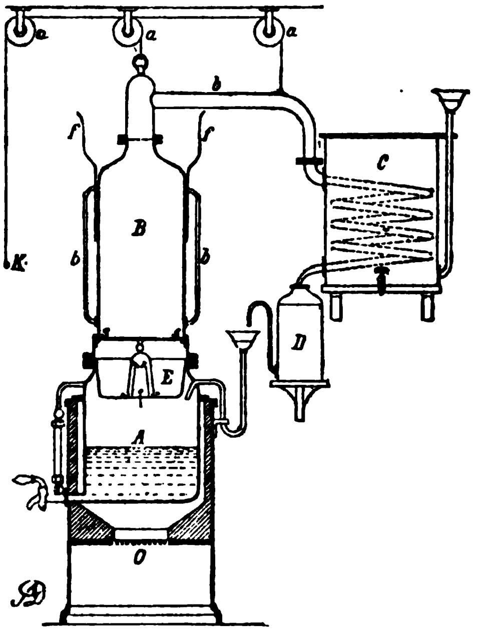
THE idea of utilizing the combustion of illuminating agents as a means of diffusing medicated vapor is not a new one, for at least a dozen years ago (*Pharm. Jour.* (3), iv., 660), if not before, candles containing benzoin and borax were introduced as a remedy for bronchial irritation and spasmodic asthma. Messrs. Casson and Brownen now propose (*Med. Press and Cir.*, Oct. 5th, p. 319) to use candles containing iodine and salicylic acid for the purpose of diffusing disinfectant and deodorant vapors in sick-chambers. They state that iodine combined with salicylic acid can be readily and permanently incorporated with fats, paraffin, or wax, and that when candles made from such materials are burnt, they evolve iodine and phenol in a vaporous form. The phenol is derived from the decomposition of the salicylic acid, and its presence can be demonstrated by the formation of trinitrophenol or picric acid, upon passing the products of combustion through nitric acid. Its relative proportion, however, depends upon the rate of combustion, as, if this goes on too rapidly and completely, the decomposition is more thorough and no phenol is evolved. The iodine is simply volatilized, and its presence in the products of combustion can be detected by its action upon starch mucilage. It is stated that a faint odor of iodine becomes perceptible when these candles have been burnt in quantity in a close atmosphere. But the vapor has not been found objectionable, and it has even been productive of relief to patients suffering from asthma, spasmodic cough, and hay fever; on the other hand, it is reported to act powerfully as a deodorant, speedily removing the smell of the fumes of tobacco or sulphuretted hydrogen.—*Pharm. Journ.*

### Decolorizing Agents.

MR. ROMAN ZALOZIECKI, of Lemberg, has published, in *Dingler's Polyt. Journ.*, vol. 265, the results of extensive experiments made with a view to ascertain the materials and conditions most suitable to economically decolorize such substances as ozokerite. He finds that the following quantities of media are required to bleach 100 parts of this substance:

| | | |
|---|---|---|
| Blood-Charcoal | 120–150 | parts. |
| " extracted with HCl | 50– 60 | " |
| Bone Black | 250–300 | " |
| Kaolin | 300–350 | " |
| Aluminium Silicate | 60– 80 | " |
| Magnesisum Silicate | 60– 80 | " |

The decolorizing power of the two last-named substances is so great that they deserve first attention. Up to the year 1883, their employment was restricted by patent-rights. This is now no longer the case. It will not be difficult for those who require these compounds to prepare them themselves. After having served their purpose, they may readily be regenerated by ignition, either with or without the access of air.



Muerrle's still for ethereal oils.

It remains to be ascertained whether these agents possess an equal decolorizing power towards aqueous or alcoholic solutions. If so, they will become useful in many chemical and pharmaceutical processes. Among the native silicates of magnesia, one of the best known is talc, or steatite. A variety of this, much used by paper manufacturers as a filling, is agalite. This contains: silica, 62.077; alumina, 0.313; ferrous oxide, 0.104; magnesia, 33.126; water, etc., 4.380 per cent.

Kaolin, which is a natural silicate of aluminium, possesses a very feeble decolorizing power, as may be seen from the above-given table. In the case of this compound, the author appears to prefer the artificial salt. In fact, most of his experiments were made with artificially prepared silicates, obtained by double decomposition between solution of silicate of sodium and suitable salts of magnesium, aluminium, etc., the precipitate being afterwards washed and dried.

◆

**Preparation of Peroxide of Hydrogen.**—A new process for preparing peroxide of hydrogen has been patented in Germany by Siegfried Lustig, of Breslau. It is briefly as follows:

Zinc amalgam is shaken with alcoholic solution of sulphuric acid and air. The mercury and the sulphate of zinc which is formed, and is precipitated in the alcoholic liquid, is removed by filtration, and the liquid concentrated in vacuo. It then represents an alcoholic solution of peroxide of hydrogen.

### Notes on Essential Oils.*

*Oil of Anise.*—The Russian crop in 1886 amounted to 4,000,000 kilos. This year's crop has been estimated all the way between 5,000,000 and 3,100,000 kilos, the latter figure being considered by Sch. & Co. as being far too low. Messrs. Schimmel & Co. alone work up daily 7,000 kilos of aniseed for oil, and there a number of other distillers.

Anethol is obtained, without any previous rectification or fractionation, by means of cold. The injurious effects of heat upon essential oils are well known, even when steam is used, in which case the oils pass over far below their boiling points; this cannot be avoided. Every rectification of an essential oil is accompanied by more or less resinification. Anethol, as obtained by mere cold, represents the pure aroma of anise, and is free from the disagreeable after-taste which is inherent in every oil of anise, no matter from what source it is obtained.

*Oil of Camphor.*—In the course of their manufacture of saffrol, etc., Sch. & Co. work up very large quantities of Japanese camphor oil, from which they obtain several by-products, constituting the largest bulk of the original substance. The light camphor oil (sp. gr. 0.900, boiling at 175° C), which is gradually being introduced as a substitute for benzin, etc., in printing offices, varnish-works, etc., has been noticed by us in former abstracts. Sch. & Co. have now put on the market a *heavy* camphor oil, sp. gr. 0.960–0.970, boiling at 240°–270° C. This has a greenish color, is viscid and may be found serviceable for many purposes after trial.

*Oil of Caraway and Carvol.*—Sch. & Co. warn against inferior qualities which are offered in the market, and recommend that suspected lots be examined for alcohol. This is particularly necessary in the case of carvol.

*Oil of Cananga (Ylang), Java.*—Many inquiries having been made for a cheap oil of ylang for perfuming soaps, Messrs. Sch. & Co. have introduced the East Indian oil of cananga. *Cananga odorata* is the same plant which yields the oil of ylang in the Philippine islands. But the odor of oil, as prepared from the Javanese plant, is far inferior to that obtained by distillation in Manilla. It is not known as yet whether the Javanese flowers are less odorous, or whether the aroma is injured by improper manipulation.

*Oil of Clove Stems*—is sometimes demanded entirely colorless. Sch. & Co. state that they can furnish it in this state at an advance of ½ mark per kilo over the price of the ordinary oil.

*Oil of Cognac.*—Sch. & Co. state that their artificial oil of cognac is finding much employment, owing to its fruity odor, in transparent soaps, particularly in combination with oil of lavender, oil of cassia, and balsam of Peru.

*Oil of Eucalyptus and Eucalyptol.*—Sch. & Co. state that Algiers alone—not to mention other countries—is fully able to supply the market with all the oil of eucalyptus demanded. Very large quantities of this oil (from *Eucalyptus globulus*) are produced there, and the supply is practically unlimited. Sch. & Co. have sold several thousand kilos of this oil, and a like quantity of Eucalyptus globulus oil derived from California where it is obtained as a by-product in the manufacture of a boiler scale remedy.

Mr. Lascelles-Scott some time ago maintained, in contradiction to Sch. & Co., that Australia furnishes eleven-twelfths of the genuine eucalyptus oil consumed in Europe. Messrs. Schimmel & Co. had published the statement that the Australian oil of *Eucalyptus amygdalina* contained no eucalyptol at all. This is declared "distinctly erroneous" by Mr. Lascelles-Scott, who stated that he had always found eucalyptol in this oil; in fact, that it contained ¼ more of it than the Californian, and ⅓ more than the African, both of which are derived from *Eucalyptus globulus*. Messrs. Schimmel & Co. thereupon thought it necessary at first to define exactly what they understood under eucalyptol. Accordingly they say:

"Eucalyptol corresponds to the formula $C_{10}H_{18}O$, is a homogeneous body, boiling at 176–177° C., has sp. gr. 0.930 at 15° C., and is obtained on a manufacturing scale by the process of Wallach (Liebig's "Annalen," 225, 297). Every doubt as to the individuality of this eucalyptol as a pure substance is excluded, since it is obtained in our laboratories even in form of crystals melting at – 1° C . . . We must adhere to our former statement that the Australian oil of *Eucalyptus amygdalina*, as we obtain it through Mr. Bosisto's agents, does *not* yield any eucalyptol by Wallach's process, and hence does *not* contain any. It contains, however, about 50% of a fraction boiling at 176–177° C.; but this has a sp. gr. of only 0.886 at 15° C., and *hence is no eucalyptol*, but consists of a mixture of a terpene $C_{10}H_{16}$ (eucalyptene), and small quantities of cymol. On the other hand, both the African and the Californian oil of *Eucalyptus globulus* yield about 60% of *true* eucalyptol, of the spec. grav. 0.930, and boiling at 176–177° C. However, if the umpireship of a disinterested authority should be required to give a final decision, we are prepared to send an original can of the oil of *E. amygdalina* to Prof. Flückiger in Strassburg for examination and report."

Messrs. Schimmel & Co. now take decided issue with Mr. Lascelles-Scott, who appears to claim a more intimate acquaintance with the nature and chemistry of eucalyptol than any other authority, inasmuch as he says that neither the English chemists nor those on the continent of Europe know exactly what eucalyptol is, etc. Proofs of this assertion have not yet been furnished by him. In contradiction, Messrs. Sch. & Co. state that the *eucalyptol* which he (Mr. Lascelles-Scott) claims to have obtained, in the period of fifteen years, from the oil of *E. amygdalina*, contains no oxygen or only traces of it; in fact, that it is composed of 88–89% carbon and 11–12% hydrogen. Chemically pure eucalyptol (Sch. & Co. yields 78% carbon and 12% hydrogen.

*Oil of Lavender.*—Mitcham oil of Lavender has never become a special favorite on the continent in Europe. No doubt this is owing to the fact that excellent oil of lavender may be obtained which is of equally good aroma or grade, and much cheaper. Sch. & Co. again draw attention to the well-known fact that oil of lavender improves after being stored one or two years, provided it is kept from contact with light or heat, "the two greatest enemies of all essential oils."

*Oils of Lemon and Orange.*—The report contains a statistical table of the export of these oils during the year 1886.

1. *Exported from Messina:*

| To | Kilos. | Value in lire or francs. |
|---|---|---|
| United States, | 58,624 | 1,179,728 |
| Great Britain, | 52,380 | 1,151,260 |
| Austria-Hungary, | 40,378* | 888,316 |
| France, | 37,424 | 823,328 |
| Germany, | 17,428 | 383,416 |
| Scandinavia, | 9,189 | 202,158 |
| Russia, | 8,508 | 187,308 |
| Spain and Portugal, | 7,095 | 156,140 |
| Holland, | 4,357 | 93,684 |
| Belgium, | 3,918 | 86,196 |
| South America, | 3,136 | 68,992 |
| Turkey and Roumania, | 758 | 16,656 |
| Egypt, | 709 | 15,609 |
| Greece and Malta, | 502 | 11,104 |
| 2. *Exported from Palermo:* | 89,241 | 1,249,374 |

3. *Exported from Reggio and Catania* estimated at 2,000,000.

*Oil of Limette.*—The freshly-pressed oil of Montserrat limes has become a staple article of perfumery. Only the fresh oil possesses the full, rich bouquet of the fruit, and it is therefore necessary to dispose of stock promptly. Good oil has a dark golden-yellow color, a magnificent, refreshing odor, and must not be confounded with the half-spoiled distilled oil, which is only calculated to bring the article into discredit.

*Oil of Linaloe.*—The production of this oil in Mexico appears to be carried to excess. Some time ago, Mr. E. M. Holmes, of London, drew attention to the reports of Poisson regarding the source of linaloe. According to this author, the tree belongs to the Burseraceæ, and the particular species has been named *Bursera Delpechiana*, in honor of Mr. Delpech, of Mexico, who furnished the necessary material for making the botanical determination. It is a tree attaining a medium height. Old trees are said to yield 10 to 12 per cent of ethereal oil. Sch. & Co. themselves, in 1873, distilled some linaloe wood directly imported from Guiana, and obtained more than 5 per cent of oil. The wood was imported in form of square logs, 6 to 7 meters (19 to 23 feet long), and up to 0.750 meters (29½ inches) [?] in diameter, pointed above, having deep grooves cut all around, below the point, just as if the logs had been used as part of a stockade. It is probable that other species of Bursera [or of other genera belonging to the Burseraceæ] furnish part of the linaloe wood. For the present, however, this has been demonstrated only in the case of the species mentioned above.

*Oil of Neroli.*—During the last ten years, the south of France has experienced a remarkable, progressive change of climate, strong frost and snow visiting such districts as had previously been nearly free from them. In consequence thereof, the crop of orange flowers has for several years been decreasing. Up to the present, however, the price of oil of neroli has remained unaffected.

Attempts have been made during the current year to distil oil of neroli in Calabria and Sicily; but, owing, no doubt, to careless selection of the flowers, the product turned out to be quite different from what is understood as "oil of neroli." The experiments will be repeated next year with greater care. It is expected that Paraguay will shortly send over the first instalments of oil of neroli produced there.

*Oil of Origanum*—that is, of true origanum, or oil of marjoram—has hitherto been available only in the variety distilled from German marjoram. This oil has a greenish-yellow color, and is but in slight demand. Recently a Spanish oil of Origanum majorana has made its appearance, which has an entirely different character and is quite colorless.

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* From the October Report of Schimmel & Co., of Leipzig.

* This figure no doubt includes a portion of the shipments to Germany, which went by way of Trieste. The figure given for Germany is too small.

*Oil of Orris.*—Some modern works contain the statement that orris-root yields nearly 0.9 per cent of oil (50 kilos are said to yield 446 Gm.). This is positively contradicted by Sch. & Co., who state that the yield is only about 0.1 per cent, or 1 per 1,000.

*Oil of Peppermint.*—Of this article, Sch. & Co. report as follows: The reports of the output of this year's distillation are, as usually, diametrically opposed to each other. . . . Our New York house, after careful consideration of the circumstances, is inclined to believe that the yield in New York State is, on an average, favorable. If the western crop has been less satisfactory, the general position will not be materially affected. . . . Very serious will be, during the present year, the competition of Japanese oil [this is, of course, meant as affecting the European, and specially the continental, market], of which many thousand kilos are now on hand in Europe, and much more expected. Even if the Japanese crop should be inferior, and the price should advance a few shillings, still the value of this oil would scarcely reach one-half of that of the American oil. This powerful competition is a factor which has not yet been sufficiently appreciated in the United States. The circumstance that the Japanese product is there [here, in the U. S.] almost ignored does not alter the fact, as it has already taken firm hold in Europe, and will gain more ground from year to year, provided its quality continues to improve. . . .

According to detailed statistics, the quantity of liquid oil of peppermint exported from Yokohama in the period from October 10th, 1886, to August 11th, 1887, amounted to 1,177 cases, at an average of 30 kilos (66 pounds) per case. Of this quantity, 1,125 cases were shipped to Europe, and only 510 kilos (1,122 *pounds*) to New York.

*Oil of Petigrains.*—In the official statistics of export from Paraguay, according to the *Deutsche Handels-Archiv*, the value of oil of petigrain is given as 12 marks (ab. $2.88) per kilo. Sch. & Co. state that this must be a mistake, as it costs about 17 or 18 marks to produce it. They also state that they still continue to keep in stock the expensive French product, but that they have ceased to deal in the still more expensive Florida oil.

*Oil of Poplar Buds*—introduced by Sch. & Co. in the spring of this year, has been lately in some demand for a kind of "poplar pomade," which is said to be beneficial to the growth of hair.

*Oil of Rose, German.*—The cultivaton of roses in the neighborhood of Leipzig, for the purpose of the distillation of the oil, promises to be a success. The area under cultivation is at present about 25 Prussian "morgen" (acres), and this year's crop about 2 kilos of oil and about 3,000 kilos of rose water (prepared in the proportion of 1 kilo of roses to 1 kilo of water). The German oil of rose may safely be pronounced the finest of all commercial sorts. It has been found by Sch. & Co., and by Prof. Flückiger, that it contains more solid stearopten than the Turkish oil, and that it congeals already at + 20° C. (68° F.). The question now arises, whether the Turkish oil, *when pure*, contains a like amount of stearopten, or whether it is true that a more elevated position of the place of growth diminishes the quantity of stearopten.

In case the larger amount of stearopten should at any time incommode the perfumer, it may easily be removed either wholly or in part. For this purpose, the oil is completely dissolved in lukewarm alcohol, and the solution filtered as soon as it begins to become cloudy. The stearopten which remains on the filter, and which is insoluble in cold alcohol, is then washed with alcohol, and will be left in a pure state and inodorous. This manipulation is required only when the oil is to be used for spirituous extracts or liquids. In all other cases, the presence of the stearopten is rather an advantage, as it helps to fix the odor.

*Oil of Rosewood*—is not only used in perfumery, but also as a bait for rabbits and rats. For the latter, however, a mixture of 1 part of oil of rose and 20 parts of oil of copaiba is said to be just as effective.

"The attractiveness, for rats, of the odor of rose is absolutely comical."

*Safrol.*—In connection with their report on oil of sassafras and safrol, regarding which we have already given the essential facts in previous abstracts, Messrs. Sch. & Co. state that their output of safrol (obtained from Japanese oil of camphor) during the ensuing twelve months will amount to at least 120,000 kilos (264,000 pounds!). In this industry, the firm uses probably the largest still which has ever been employed for ethereal oils. It holds 24,000 liters (6,340 gallons), and a single charge of crude material amounts to about 18,000 kilos (ab. 39,000 pounds or over 17 tons).

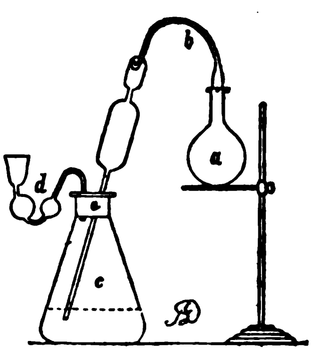
* * *

**Preserving Eggs.**—Mrs. Hardwicke, widow of the founder of *Science Gossip*, preserves eggs fresh by carefully oiling them with a soft brush all over, and packing them in a jar with plenty of bran between each layer. A thick brown paper should be tied over the jar when it is full. "When eaten at three months old," she says, "you could not tell them from fresh eggs."—*Pop. Sci.*

## IMPROVED APPARATUS FOR ESTIMATING IODINE, ETC.

WHEN iodine is to be estimated by eliminating it in a free state, and driving its vapor over into a receiver containing an absorbing liquid, in which it is to be subsequently determined by trituration—as, for instance, when syrup of iodide of iron is to be assayed, by distilling it with a solution of ferric chloride—the apparatus here described may be used to advantage, as it reduces the risk of loss of iodine to a minimum.

The flask *a* has a capacity of about 60 C.c., and is intended to receive the substance in which the iodine is to be estimated. The tube *b* is carefully ground to fit the neck of the flask, and terminates, with its outer end turned up, in a double bulb-tube. The lower one of these bulbs is oblong and of sufficient capacity to prevent liquid from the receiver *c* from being aspirated back into the flask *a* when the distillation is interrupted. At *e*, the tube passes through a tight-fitting stopper, which also carries the safety funnel *d*. This is charged with only so much of the absorption liquid as is necessary to fill the connecting tube between the two bulbs.



When the distillation has been continued long enough, and no more vapors of iodine pass over into the receiver, the tube *b* is detached from the flask *a*, the stopper *e* removed, and both *b* and *d* carefully washed, the washings being added to the contents of *c*. These are then immediately titrated.

The apparatus is manufactured by F. A. Kühnlenz in Frauenwald (Thuringia), and may be had through dealers in chemical apparatus.—*Pharm. Centralh.* and *Chem. Centralbl.*

## NEW FORMS OF APPARATUS.

E. POLLAK describes several new forms of apparatus of simple and practical construction.

Fig. 1 represents an apparatus suitable for saturating a liquid with gas, or passing a current of gas through a liquid, while at the same time an upright condenser effects the condensation and return to the flask of the escaping vapors of the liquid. The condenser consists properly speaking only of the inner portion, corresponding to the two outlet tubes *b* and *c*. The outer wall with its orifice *a* serves merely as a prolongation of the neck of the flask. Any uncondensed vapor will, of course, escape through *a*.

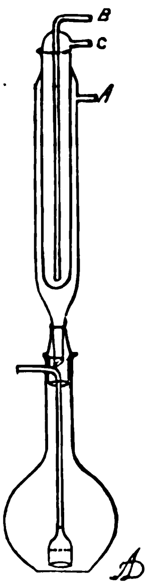


FIG. 1.

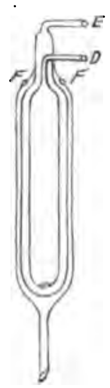


FIG. 2.

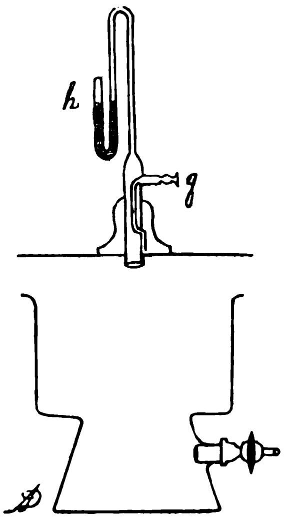


FIG. 3.

In Fig. 2 another upright condenser is shown, which has two tubulures *e* and *d*, serving for the entrance and exit of the condensing water, and corresponding to the tubes *b* and *c* in Fig. 1. In this case, any uncondensed vapor will escape through the small openings *f f*.

Both of these condensers may be attached to a flask by merely inserting them in the neck.

Fig. 3 represents an exsiccator, which may either be exhausted of air, or may be filled with any desired gas. It has two faucets, one near the bottom of the usual construction, and another hermetically ground into the lid, and representing a combination of stop-cock with manometer. The capillary tube *g* serves for connecting with the air-pump or water filter-pump. The tube *h* is a mercury manometer, the short leg of which is closed on top. A short column of air is retained over the surface of the mercury in the closed leg, so that the mercurial column may respond to the exhaustion, and indicate its rate by its fall or rise. When the exsiccator is to be charged with some gas (for instance, carbonic acid or nitrogen), this may be done either by displacement of the air by a current of the gas, or by first pumping out the air and then admitting the gas.—After *Repert d. anal. Chem.*, No. 40.

### Estimation of Morphine.

THE process recommended by the United States Pharmacopœia for the estimation of morphine in opium, although one of the few processes that give reliable results, contains, according to H. Goebel (*Chem. Zeit.*, 1887, 508) some faults, which the author has endeavored to eliminate.

The U. S. Process (under *Opium*) is briefly as follows: 7 Gm. of opium, 3 Gm. of Lime and 20 C.c. of Water are triturated to a uniform mixture in a mortar; 50 C.c. of water are then added. After half an hour, the mixture is filtered, 50 C.c. of filtrate (corresponding to 5 Gm. opium), mixed with 5 C.c. of alc. and 25 C.c. of stronger ether, and 3 Gm. of chloride ammonium then added. The mixture is well shaken during ½ hour, and then set aside for 12 hours. The ethereal solution is poured into the inner one of two small counterbalanced filters, placed inside of each other; 10 C.c. of ether added to the contents of the bottle, with rotation, and this also transferred to the filter. The latter is then washed with 5 C.c. of ether. The filters are now allowed to dry in the air, and then the residuary liquid poured on, together with as much of the crystals as is possible. The flask and filter are next to be washed with not more than 10 C.c. of water [in the abstract of Goebel's paper before us, the author has "5 C.c." instead of ten]. The filter is finally dried between 55° and 60° C. [Goebel has "at 100° C."], and weighed.

While some of the author's criticisms appear to be based upon an erroneous reading of the original, some of his propositions are, nevertheless, of importance, and worthy of attention.

The crystals of morphine should be soluble in one hundred times their weight of lime-water. The author draws attention to the following sources of error: 1st. The incomplete removal of all substances soluble in ether. 2d. 5 C.c. ["10 C.c.," U. S. P.] of water are insufficient to wash both filter-papers and crystals, and, in consequence, the outer and counterpoise filter-paper contains more impurity than the inner. 3d. No allowance is made for the morphine in the mother liquor and washings. 4th. The amount of water used in the exhaustion of the opium is insufficient in the case of opium containing fifteen per cent of morphine.

In order, therefore, to eliminate some of these sources of error, the author suggests the following modifications: 5 to 10 grammes of opium should be exhausted with 110 C.c. of water, and 4 to 5 grammes of slaked lime added without filtration; after the lapse of an hour, the mixture is filtered, 50 C.c. of the filtrate is taken for analysis and treated as above.

After the first 25 C.c. of ether has been filtered off, both filter-paper and the alcoholic solution are washed with pure ether. Instead of the counterpoised filter-papers, a single paper is used which has been previously treated with dilute sulphuric acid. The mother-liquor and washings are measured, and an allowance of 0.01 gramme morphine made for every 10 C.c.

The filter-paper and crystals, finally, are well washed with water, dried at 100°, and weighed.

The weight of the filter-paper is determined after removal of the morphine with dilute sulphuric acid and water.

### Estimation of Bitartrate of Potassium in Argols, etc.

AN improved method for determining the amount of pure bitartrate of potassium in argols or wine-lees has recently been published by F. Klein. This is not only very simple, but it has also the advantage that it yields results practically identical with those obtained on the large scale. In other words, while it is not absolutely sharp, it is probably the best method known for ascertaining how much pure cream of tartar may be extracted, on a manufacturing scale, from crude argols. The process depends upon the fact that bitartrate of potassium is very difficultly soluble in a solution of chloride of potassium. It is as follows:

Take a quantity of the material containing between 1.8 and 2.2 Gm. of pure cream of tartar (to be ascertained approximately by a preliminary trial). Boil this with five successive portions of distilled water, filter, and wash the residue on the filter with boiling distilled water, until the washings cease to have an acid reaction. Evaporate the united filtrates to 40 C.c., allow to become cold, then add 5 Gm. of chloride of potassium, stir briskly for fifteen minutes, and filter at once. Or, stir for a short time only, and let stand over night. Then collect the precipitate on a filter, wash it with a 10% solution of chloride of potassium, which had previously been saturated, at the ordinary temperature, with pure cream of tartar, and finally determine the tartaric acid volumetrically.

A cream of tartar containing 99.87% of the pure bitartrate, when tested by this process, yielded 99.80 and 99.84% when the stirring was continued, as above directed, for fifteen minutes, and the mixture filtered at once. Another sample, which was stirred only a short time and allowed to stand over night, yielded 99.60% on assay.

Arthur Bornträger has determined the solubility of cream of tartar in solution of chloride of potassium, and, from the figures obtained, recommends to add *for every 2 grammes* of bitartrate found by Klein's method, the figure 0.033, before calculating the percentage.

The presence of gypsum in the material to be assayed would render the process somewhat less exact.—After *Rep. d. Anal. Chem.*, No. 39.

### A ready Method of determining Boric Acid.

UP to within a few years ago, the exact quantitative determination of boric acid was not an easy matter, since all the available processes were apt to be defective under certain circumstances. Among the newer methods, which lead to greater accuracy, that of Th. Rosenbladt deserves special mention. This is based upon the fact that the borate of methyl is volatile, and may easily be distilled over. Mr. Rosenbladt's method was further improved by Mr. Gooch, who found that boric acid can be volatilized with the vapors of methylic alcohol.

The apparatus used by Gooch consists of a retort holding 200 C.c., resembling a large pipette, lying on its side, with the two ends bent upwards at a right angle. One of these serves for charging the apparatus, and for this purpose is provided with the stop-cock and funnel-head, while the other end (having a bore of about 7 millimeters) is again curved downwards and passes, air-tight, through an upright condenser. The distillate is received in a small Erlenmeyer flask, tightly fitted to the condenser, a small notch being cut in the rubber stopper to establish communication with the outer air. The boric acid, as it distils over, is absorbed by lime. The operation is conducted as follows:

The solution containing boric acid, acidulated with nitric or acetic acid (it must contain *no* hydrochloric acid) is introduced through the funnel into the retort, and the latter then pushed into a paraffin bath, previously heated to 130–140° C., in such a manner, that at first only the rear portion of the half-filled retort is immersed. The receiver had previously been charged with a sufficient quantity of a milk of lime, prepared by igniting a piece of lime in a platinum crucible to a constant weight, and then introducing it with a little water into the Erlenmeyer flask.

In the first distillation, all the liquid in the retort is distilled over. Six further distillations are then performed, there being each time 10 C.c. of methylic alcohol added to the retort, and the distillation carried to dryness.

If nitric acid had been used, it is necessary, owing to the insolubility of nitrates in methylic alcohol, to intercalate two extra distillations, between Nos. 3 and 4 and Nos. 5 and 6, with 2 C.c. of water added.

If acetic acid is used, this precaution is not necessary, but acetate of calcium should not be present in more than minute quantities. But, as acetates are apt to become alkaline by repeated treating, a few drops of acetic acid should be added previous to the 4th distillation.

At the close of the operation, the complete removal of boric acid from the contents of the retort may be easily proven by testing with turmeric paper. If nitric acid had been used, the nitrates present must first be oxidized by bromine and the excess of the latter removed; if acetates are present, the liquid should be supersaturated with hydrochloric acid.

The contents of the receiver are washed into the platinum crucible in which the lime had been heated, then evaporated, and the residue ignited and weighed. The increase of weight represents the boric acid. The analytical figures given with the paper show that the method yields very accurate results, the latter being, in the mean, 0.5 per cent too high.—After *Zeitsch. f. Anal. Chem.*

### Corn Collodion without Cannabis Indica.

THE following combination is reported by Johannes Bienert to be equally effective with Gezow's well-known preparation, containing cannabis indica:

| | |
|---|---|
| Salicylic acid | 10 parts. |
| Venice Turpentine | 1 part. |
| Chlorophyll | q. s. |
| Collodion | 100 parts. |

— *Ph. Zeitschr. f. Russl.*

[The chlorophyll is the usual commercial article, which is prepared from spinach and certain other vegetables by extraction with solution of soda (containing one-half per cent NaOH) and subsequent precipitation with hydrochloric acid. Of course, the addition of chlorophyll in the above compound has no other object than to *imitate* Gezow's corn collodion, which is green in consequence of containing extract of cannabis indica. As it is, therefore, of no therapeutic value, it had better be omitted altogether.—ED. AM. DRUGG.]

[ORIGINAL ABSTRACT AND TRANSLATION.]

## Iodol as a Test for the Purity or Identity of Essential Oils.*

MR. E. HIRSCHSOHN, Pharm. Mag., having observed that oils of turpentine of different origin possessed a very varying solvent power for iodol, examined a large number of essential oils, with a view to ascertain whether the rate of solubility of this body could be made a criterion as to the purity of any of these oils. His experiments were made with the commercial iodol, which is a body of undetermined purity. While he has obtained with this very remarkable and practically useful results, he gives the latter with reservation, as they may possibly turn out somewhat different when perfectly pure iodol is used.

We have not the space to give a translation of the whole paper, but shall select the more important portions.

The tests were made in this way, that a weighed portion of iodol was introduced into a tube, graduated in $\frac{1}{10}$ C.c., and successive small quantities of an essential oil gradually added, with intermediate shaking, until a clear solution resulted. The experiments were made at a temperature of 15 to 18° C.

*One gramme of iodol requires for solution* the following quantities of *essential oils:*

| | C.c. | | C.c. |
|---|---|---|---|
| Almonds | 1.4– 2 | Lemon, comm. | 30 –40 |
| Anise | 16 –17 | Neroli | 9 –11.5 |
| Anise, star | 19 | Orange, bitter | 50 |
| Bay | 20 | " sweet | 30 |
| Bergamot, pure | 18.5 | " Curaçoa | 9.5–10 |
| Caraway | 2.3– 3 | Petit Grains | 13 –15 |
| Cassia | 2 | Peppermint (all sorts), | 4 – 5 |
| Cinnamon (Ceyl.) | 2 | Sassafras, pure | 20 |
| Cloves | 12 | Safrol, pure | 29 |
| Copaiba | 30 | Turpentine, French lævogyre | 500 |
| Cubeb | 7 | Turpentine, rectified, | 60 |
| Fennel | 4.4 | | |
| Lemon, pure | 48 | Wintergreen | 9 –11 |

In the case of some of these oils, the author mentions also results which differ from those here given, but this was no doubt due to the fact that the other samples examined were those occurring in the trade.

The oils of the orange family show a very different behavior among themselves, and may therefore be distinguished from each other by this test. Thus, oil of Portugal (sweet orange) may easily be distinguished from oil of bigarade (bitter orange); and even mixtures of these oils may be recognized.

The greatest solvent power is exerted by oils of the compositæ and labiatæ. Certain constituents exert a remarkable influence on the solvent power. Thus, of pure anethol 16 C.c. are required, and the same amount (or between 16 and 17 C.c.) of any pure oil of anise; an oil, however, from which part of the anethol has been extracted, will have a much greater solvent power (8 C.c.)

It will be seen, therefore, that this test can be put to practical use.

### Saccharin Preparations.

AMONG recent preparations of saccharin we notice the following, announced by Allen & Hanburys, of London:

1. *Tabellæ Saccharini* (compressed sugarless sweeteners). Contain one-fifth grain of saccharin in each.
2. *Sal Saccharini* (granulated sugarless sweetener). Contains 50% of pure saccharin.
3. *Elixir Saccharini* (fluid sugarless sweetener). Contains 5% of pure saccharin.

### Industrial Preparation of Oxygen.

A RECENT number of *Industries* (Oct. 21st, p. 457) contains an interesting description of Brin's process for the preparation of oxygen from atmospheric air, which is based upon the fact that barium monoxide, when heated to low redness, is capable of absorbing oxygen and becoming converted into barium dioxide, and that at a higher temperature this oxygen is again given off, and the dioxide reduced to monoxide. This reaction, which was first pointed out by M. Boussingault, is a well-known one, but its industrial application has been hitherto hindered by the experience that baryta, after being used for a time, seemed to lose its power to absorb oxygen. Messrs. Brin ascertained by experiment that this failure was due to molecular and physical changes caused in the baryta by impurities in the air and the use of a high temperature in decomposing the dioxide.

In their new process, therefore, the air is submitted to a preliminary purification by passing it through layers of quicklime and caustic soda, to remove carbonic anhydride and moisture, whilst by operating in a partial vacuum, the dioxide is decomposed at a temperature of about 800° C. Under these conditions it is found that the same baryta can be used indefinitely. The air is drawn through retorts containing baryta in lumps heated to about 600° C. until the gas at the outlet fails to extinguish a glowing match, which usually occurs in one and a half or two hours.

The temperature is then raised and the action of the pump reversed so as to draw off the oxygen as it is evolved.—*Pharm. Journ.*

THE
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REGULAR ADVERTISEMENTS according to size, location, and time. Special rates on application.

## EDITORIAL.

WE have a suggestion for the committees who publish the annual volumes of Proceedings of State associations which will somewhat increase the value of these reports with but little labor or additional expense. It is that space should be devoted to a list of all local pharmaceutical organizations in the State with their officers, committees, and time for stated meetings. The number of local societies is increasing quite rapidly, and without some such aid it becomes almost impossible to keep track of them.

ANOTHER suggestion is worthy of attention in view of the rapid growth of pharmaceutical legislation and the diversity of pharmacy laws. In publishing the text of any law of the nature referred to, instead of striking out any portion modified by subsequent amendment, inclose it in a strongly-marked parenthesis, with a marginal note stating when it was repealed. In the same way amendments should have a marginal note giving the date of their adoption. In this way the published text will show the growth of the law from the passage of the first act, and will greatly aid those who contemplate subsequent amendment, as well as serve as a guide for pharmaceutical law framers in other States.

It is generally acknowledged that there is need for some uniformity in the pharmacy laws adopted by the several States, and the adoption of the course here suggested would, practically, enable those who are drafting a bill for a new law to profit by the experience of those who have preceded them in such labors.

AS the time of year arrives when the customary exchange of holiday gifts and good wishes is in order, allow us to suggest that the pharmacist's wife will find *The Cosmopolitan* (a monthly illustrated magazine published by the Schlicht & Field Co., of New York) a very acceptable present, and the back numbers will so interest the young woman who is waiting for a prescription that she would rather wait than not. When you treat yourself to the AMERICAN DRUGGIST for 1888, send for *The Cosmopolitan* for the "silent" partner of the firm.

THE pharmacist, no less than other professional men, can ill afford to be unfamiliar with the leading questions of the day; for the non-professional public usually judges of his intelligence from his knowledge of affairs outside of his regular business. Every man who wishes, therefore, to increase the respect with which the community regard him, will make a good investment in subscribing for and *reading* the *Popular Science Monthly*, published by D. Appleton & Co., of New York, now in its thirty-second volume.

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* "Ueber die Löslichkeit des Iodols in aetherischen Oelen." (Reprint from the *Pharm. Zeitsch. f. Russl.*, 1887, No. 33. Received from the author.)

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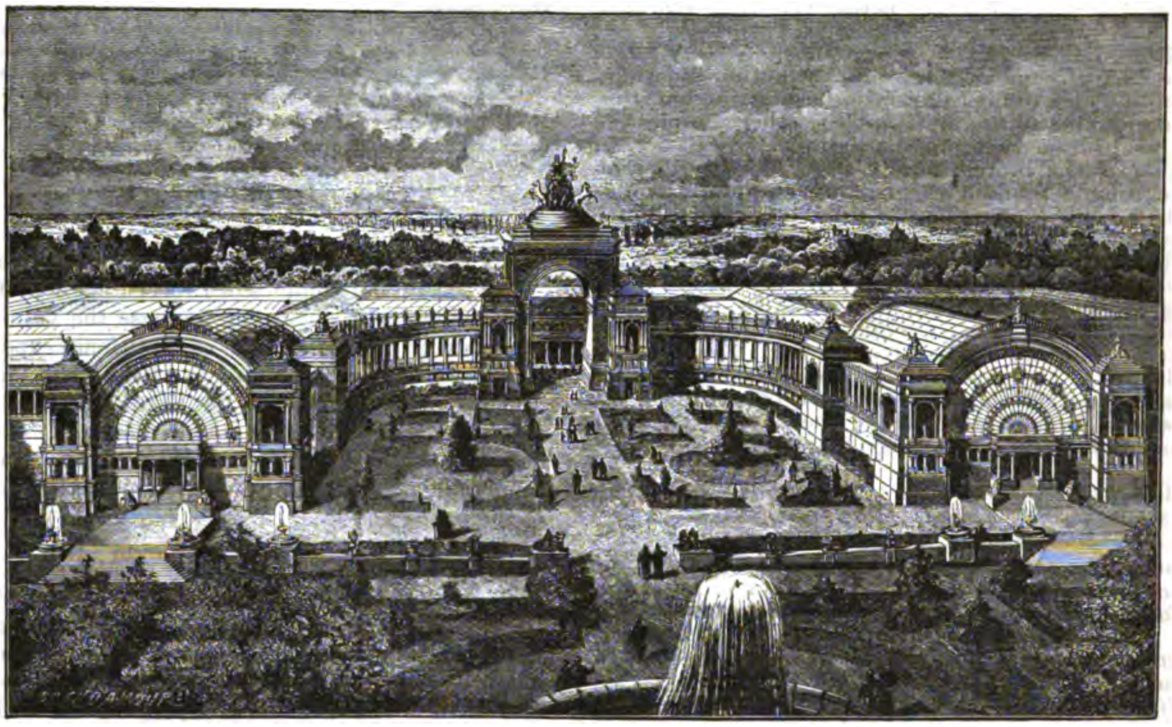
ONE of the most remarkable decisions that has lately been given by the Treasury Department was recently noticed in the daily papers in a paragraph which read as follows:

> "The Treasury Department has recently granted the request of New York importers of drugs for permission to import oil of peppermint in sixteen-ounce bottles, packed in cases, and to repack the same in bond for export in twenty-one ounce bottles, to be put into the original outside case or package."

A correspondent of the *New York Daily Tribune*, writing from Lyons, N. Y. (the centre of the peppermint industry of this country), calls attention to the true meaning of this decision and the disastrous effect it is likely to have upon the peppermint production of this country. The explanation is simply this: An importer can bring Japanese peppermint oil which has been deprived of its menthol to New York, remove it from its original bottles, and put it into bottles resembling those used in the United States for this purpose, label it with a fraudulent label, repack it in the original cases, and send it to similarly unscrupulous dealers abroad.



Buildings for the Brussels International Exhibition.

In other words, the general government not only enables the dealers to evade customs duties, but connives at a fraudulent transaction.

---

WE have before announced the approaching international exhibition, to be held at Brussels, commencing on the first Saturday of May next, and take advantage of a recently published circular containing the general rules which will govern the competition for prizes, to mention it again in connection with an illustration of the buildings which are to be used for its instalment. Competitions are to be arranged under fifty classes, grouped so as to facilitate study of the products of each nation in connection with similar industries of other countries. Numbers of the jury of award are to be designated by the governments of the various countries represented or by the delegates or participators in the competition and exhibition. Special efforts are being made to render the exhibition attractive and profitable, and Messrs. Armstrong, Knauer & Co., of 822 and 824 Broadway, New York, have been made the authorized agents in this country to receive applications for space, and furnish such information as may be desired. All applications for space from this country must be filed before the 15th of January next, and all entries must be made before April 15th next, and be in place and in proper order by April 15th.

We are informed that the British Empire has already subscribed for 2,300 square yards of space, and will be well represented.

Messrs. Armstrong and Knauer will personally represent American exhibitors, and look after their exhibits and orders forwarded through them.

Among the 50 classes we note the following: 6, Instruments of precision and general measuring; 13, Plate glass, crystal, goblets, glass and pottery works; 31, Oil making; 34, Material, processes, and products of chemical works; 35, Material processes and products of pharmaceutical works, etc.

The exhibition is to be under the patronage of the king of Belgium.

◆

THE effect of prohibition in Iowa is that signs appear on numerous suspicious-looking shanties in the back country reading: "Druck Sto," "Drog Staer," "Drugg Stower," etc. The injury done the English language alone by prohibition will be felt by the people of that State for at least fifty years.—*Detroit Free Press.*

**Laboratory of Hygiene University of Michigan.**—A correspondent of the *Pharm. Era* writes from Ann Arbor that the new bulding to be occupied by the laboratories of physics and of hygiene will probably be ready for use about October, 1888. Meanwhile the work of the laboratory is being conducted as well as may be in the other buildings. Mr. F. G. Novy has been appointed instructor in hygiene, to assist Prof. Vaughan.

**The British Pharmaceutical Conference** has elected the following officers: President, F. B. Burger; Vice-Presidents, M. Carbeighe, C. Symes, S. Plowman and W. Martindale; Treasurer, C. Nurney; Honorary General Secretaries, Dr. J. C. Tresh and Mr. W. A. H. Naylor.

**New Pharmacy Board for Georgia.**—Gov. Jno. B. Gordon has just appointed as a new Board of Pharmaceutic Examiners Messrs. J. W. Goodwin of Macon, Theo. Schumann of Atlanta, Osceola Butler of Savanah, S. C. Durban of Augusta, and H. R. Slack, Jr., of La Grange.

They are appointed for three years. The Governor is to be congratulated upon making such a selection, for it would be almost impossible to find five more skilful and better known pharmacists, and these appointments cannot but give satisfaction to the profession throughout the state.

**The California College of Pharmacy** held its fifteenth annual commencement exercises in Odd Fellows' Hall, San Francisco, on Tuesday evening, Nov. 8th.

The graduating class consisted of Messrs. Thomas P. Bodkin, Henry W. Crew, Frederick A. Driscoll, Emery P. Gates, Henry Haman, John C. Inez, Jr., Milburn H. Logan, M.D., Charles C. Mohun, John R. McMurds, Horace S. Nichols, Arthur G. Orena, Charles A. Seifert, Dietrich H. Wulzen, Jr., and Joseph S. Warren.

Prizes were awarded to: (I.) Milburn H. Logan, M.D. (gold medal); (II.) John C. Inez, Jr. (monocular microscope with attachments); (Junior) Richard T. Frank (lecture tickets to senior course).

Addresses were delivered by Prof. H. H. Behr, M.D., and Henry W. Crew, Ph.G.

## Selected practical Formulæ.*

### 1. *Manna Lemonade.*

(Limonada mannata.)

| | | |
|---|---|---|
| Manna, flake | 100 | parts. |
| White Bolus | 1 | part. |
| Oil-Sugar of Lemon | 1 | “ |
| Citric Acid | 8 | parts. |
| Syrup | 50 | “ |
| Distilled Water | to make 600 | “ |

Dissolve the Manna in 500 parts of distilled water, add the White Bolus, raise to boiling, and take off the scum. Then (allow to cool somewhat), add the Oil-Sugar, filter, dissolve the Citric Acid in the filtrate and add the sugar. Finally, add enough distilled water to make 600 parts.

This is an agreeably tasting laxative, especially for children.

[*Note.*—The white bolus is added merely for the purpose of aiding the clarification of the manna solution. Oil-Sugar of Lemon, like any other oil-sugar, is prepared by triturating 1 drop of a volatile oil with 30 grains of sugar to a fine powder.]

### 2. *Tamarind Lemonade.*

(Limonada purgativa Tamarindorum.)

| | | |
|---|---|---|
| Extract of Tamarinds | 30 | parts. |
| Syrup of Raspberries | 25 | “ |
| Bicarbonate of Sodium | 2 | “ |
| Distilled Water | 300 | “ |

Dissolve the extract of Tamarinds in the distilled water, filter the solution into a strong bottle containing the syrup, then add, without shaking, the bicarbonate of sodium, cork quickly and secure the cork.

This preparation is a pleasant laxative for children and women.

[For extract of Tamarinds see next formula].

### 3. *Extract of Tamarinds.*

| | | |
|---|---|---|
| Tamarinds | 1000 | parts. |
| Distilled Water, boiling | 5000 | “ |

Mix them, and allow them to stand for twenty-four hours, repeatedly stirring. Then strain through a close-woven linen [or cotton] bag, press twice between boards, and filter the solution. A metallic press may be used, provided it be lined with parchment paper. Evaporate the filtrate to a thin extract. This will be of a brown color, transparent in thin layers, and soluble in water almost to a clear liquid.

The yield is about 500 parts (50%).

### 4. *Effervescent Carbonate of Lithium.*

| | | |
|---|---|---|
| Carbonate of Lithium | 10 | parts. |
| Bicarbonate of Sodium | 30 | “ |
| Tartaric Acid | 20 | “ |
| Sugar | 40 | “ |
| Alcohol | 40 | “ |

Reduce the solids to a fine powder, mix thoroughly, dampen and knead it with the alcohol, then rub it through a coarse tinned iron or hair sieve or through an enamelled colander, and dry it, first at 20° C. (68° F.), then at 40° C. (104° F.). Separate the somewhat coherent mass by cautious pressure and preserve in well-closed vessels.

### 5. *Effervescent Citrate of Lithium.*

| | | |
|---|---|---|
| Citrate of Lithium | 10 | parts. |
| Bicarbonate of Sodium | 30 | “ |
| Tartaric Acid | 20 | “ |
| Sugar | 20 | “ |
| Sugar of Milk | 20 | “ |
| Alcohol | 40 | “ |

Mix the solids, in fine powder, dampen and knead the mixture with the alcohol, and proceed as in the preceding case.

### 6. *Cold Cream.*

| | | |
|---|---|---|
| White Wax | 1230 | grains. |
| Spermaceti | 1230 | “ |
| Oil of Almond, expressed | 18 | tr. oz. |
| Distilled Water | 9 | “ |
| Borax | 75 | grains. |
| Cumarin | ¼ | “ |
| Oil of Rose | 24 | “ |
| “ “ Neroli | 8 | “ |
| “ “ Geranium, French | 5 | drops. |
| “ “ Ylang | 2 | “ |
| “ “ Orris (melted) | 1 | “ |
| Tinct. of Ambergris (1 : 10) | 8 | “ |

Melt the Wax, Spermaceti, and Oil of Almonds, allow the melted mass to cool to a semi-liquid state, and beat it to a cream. Then add the Distilled Water in which the Borax had previously been dissolved, and finally add the aromatic substances previously mixed together. The whole must be thoroughly stirred until it forms a uniform cream.

### 7. *Glycerin Cold Cream.*

| | | |
|---|---|---|
| White Wax | 1230 | grains. |
| Spermaceti | 1230 | “ |
| Oil of Almond, expressed | 19 | tr. oz. |
| Glycerin | 4 | “ |
| Distilled Water | 4 | “ |
| Borax | 75 | grains. |
| Cumarin | ¼ | “ |
| Oil of Rose | 15 | “ |
| “ “ Bergamot | 8 | “ |
| “ “ Neroli | 8 | “ |
| “ “ Ylang | 2 | drops. |
| “ “ Orris (melted) | 1 | “ |
| Tinct. of Ambergris (1:10) | 5 | “ |

Proceed as under Cold Cream.

### 8. *Vaseline Cold Cream.*

| | | |
|---|---|---|
| White Wax | 1150 | grains. |
| Spermaceti | 1150 | “ |
| Oil of Almond, expressed | 14¼ | tr. oz. |
| Vaseline | 6¼ | “ |
| Distilled Water | 6½ | “ |
| Borax | 150 | grains. |
| Cumarin | ¼ | “ |
| Oil of Rose | 16 | “ |
| “ “ Bergamot | 16 | “ |
| “ “ Geranium, French | 5 | drops. |
| “ “ Rhodium | 2 | “ |
| “ “ Orris | 1 | drop. |
| Tinct. of Civet (1:10) | 5 | drops. |

Proceed as under Cold Cream.

### 8. *Effervescent Citrate of Iron with Magnesia.*

| | | |
|---|---|---|
| Ammonio-Citrate Iron | 50 | parts. |
| Carbonate of Magnesium | 25 | “ |
| Bicarbonate of Sodium | 500 | “ |
| Tartaric Acid | 400 | “ |
| Sugar | 400 | “ |
| Alcohol | 300 | “ |
| Citric Acid | 75 | “ |

Reduce the five first-named ingredients to a very fine powder, place this in a capsule and warm it very slightly over a steam- or water-bath. Then moisten the mass with the alcohol in which the citric acid had previously been dissolved. Rub the damp mass through a coarse tinned iron or hair sieve or an enamelled colander, transfer the mass in thin layers to the drying closet and dry it thoroughly. Finally rub the dry mass cautiously through the sieve and transfer the handsome, lemon-yellow product into dark amber-colored vials which are to be well stoppered.

### 9. *Pencils for Chilblains.*

| | | |
|---|---|---|
| *a.* Camphor | 30 | parts. |
| Benzoated Tallow | 65 | “ |
| Alcohol | 5 | “ |

Dissolve the Camphor in the Tallow by the aid of a water-bath, add the Alcohol and stir until the mass begins to stiffen. Then pour it out into suitable pencil-moulds.

*b.* Liquid Paraffin,
Solid Paraffin,
Iodine,
Tannic Acid,
Alcohol.

Melt the two Paraffins together over a water-bath, allow the mixture to cool somewhat and dissolve in it the Iodine. Then mix with it the Tannic Acid, add the Alcohol, and when the mass has sufficiently cooled, pour it out into suitable pencil-moulds.

## Terpinol.

TERPINOL is recommended to be administered in form of pills, for which the following combination is suggested by O. Kaspar (*Pharm. Zeitsch. f. Russl.*).

| | |
|---|---|
| ℞ Terpinol, | |
| Ammon. Benzoatis, | |
| Ceræ Flavæ, | |
| Pulv. Constituent | āā 150 grs. |
| Mucilag. Tragacanth | q. s. |

M. Fiant pil. 100.

The pulvis constituens in the preceding formula is directed to be prepared from

Acacia, powd.
Sugar, powd.
Althæa, powd. } equal parts.

and the mucilage of tragacanth, from 1 part of tragacanth and 6 parts of water.

## Adulteration of Spanish Wine.

J. A. HALL, U. S. Consular Agent at Jerez de la Frontera, writes to the department of state that large quantities of potato spirit are consumed in Spain in the "fortifying" of sherries, its cost being scarcely a third that of spirit of wine. Moreover, many dealers of former good standing consent to sell inferior wines of other localities under Jerez brands. The harmful effect of these practices upon the wine industry of the country has lead the Chambers of Commerce to urge the government to adopt preventive measures as regards the admission of the adulterant, and to establish laboratories at the principal ports of shipment where wines may be tested and their purity guaranteed.

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* From *Neues Pharmaceutisches Manual*, von Eugen Dieterich. 8vo, Berlin (Springer), 1887.

## CORRESPONDENCE.

### St. Jacob's Oil.

DEAR SIRS:—Query 2,037 (Toledo) has a very nutty flavor—chestnut-ty, so to speak. St. Jacob's Oil was a phenomenal success and has been the means of starting up any number of liniments and salves of saintly name. Wiseacres and so-called analyists without number have published their opinions and their analysis; but inasmuch as no two agree as to its composition, opinion and analysis count in this instance for very little. Every formula given in answer to query 2,037 is *wrong*, and Dr. Squibb's is conspicuously so. As the author of the formula of this widely distributed liniment, St. Jacob's Oil, I know whereof I speak, and do say that, thus far, no correct analysis of the oil has ever been published. I have enjoyed the efforts on the part of many to get at the "true inwardness" of the compound; but thus far their failure is the standing advertisement of their inability to discover its components.

Yours truly,
W. L. KELLER,

BALTIMORE, Nov. 18th, 1887.

* * *

**Sattler's Solution.**—Under this name, a solution of hydrochlorate of cocaine, mixed with a certain proportion of corrosive sublimate, has for some time been used by a few ophthalmologists of Europe. It is prepared as follows:

| | | |
|---|---|---|
| Cocaine Hydrochlorate | 5.00 Gm. | 75 grains. |
| Corrosive Sublimate | 0.02 " | ⅓ grain. |
| Water | 100.00 " | 3¼ fl. oz. |

From experiments made by Balbiano and Tartuferi, who found that mercuric chloride formed a double salt with cocaine salts, it appears that the small quantity of this double salt present in the above solution does not impart to it any antiseptic properties, as had been assumed. —*Pharm. Journ.*

**Pile Ointment.**—The following combination, being a modification of one first published by us a number of years ago, has been found extremely beneficial in most cases of non-bleeding hæmorrhoids:

| | | |
|---|---|---|
| Yellow Wax | 8 | troy oz. |
| Rosin | 4 | " |
| Lard | 12 | " |
| Camphor | 1 | " |
| Oleate of Morphine, 10% | ½ | " |
| Oil of Sassafras | 2 | " |

Melt together the Yellow Wax, Rosin and Lard, add the Camphor, and stir until it is dissolved. Then cover the vessel, and when the contents have partially cooled, add the Oleate of Morphine and Oil of Sassafras. Stir until cold.

**Action of Alkalies or Acids upon Diastase.**—J. R. Duggan has found that when 20 parts of soda solution (10%) are added to 1,000,000 parts of gelatinized starch, diastase exerts upon it a much more feeble action than upon the same quantity of pure gelatinized starch. Putting the action on the latter equal to 100, that upon the alkaline starch is only about 26. The addition of more alkali entirely neutralizes the action of the diastase. This is also greatly diminished by the addition of 3 parts of sulphuric acid to 10,000 parts of gelatinized starch. The quantity of saccharified starch is proportional to the duration of the action of the diastase, but only in the beginning. After about one-third of the starch has been converted, the further change is retarded.—*Zeitschr. f. Spiritusind.* and *Ding. Pol. Journ.*

**Preparation of Mead.**—An excellent mead, or perhaps better called "metheglin," may be prepared, according to the *Cesky Lloyd*, as follows:

Mix 40 to 45 quarts of pure, soft or distilled water with 10 quarts of honey, heat the mixture for about 1½ hours, and skim it during this time. Then allow it to cool slowly, and transfer it to a clean cask, which must be completely filled with it. Leave the bung-hole open. In a cellar of medium temperature. fermentation will begin in about 8 days, and last a fortnight. As soon as the fermentation is completed, draw off the clear liquid, taking care that no yeast becomes mixed with it. The liquid is then allowed to ferment again in the same cask, previously cleaned, and finally it is drawn off in bottles. A finer aroma may be imparted to the product by adding about a half-pint of honey to the cask, and the fermentation may be hastened by adding a little yeast. The product improves by age.

**Adhesive Paste.**—An adhesive paste of the tenacity of gum arabic mucilage, but much cheaper, may be produced as follows:

Dissolve 400 parts of sugar in 100 parts of water, heat the solution to boiling, and add 100 parts of slaked lime. Stir well and set the vessel aside for a few days, so that the excess of lime may deposit. Then pour off the supernatant solution of saccharate of calcium, and mix with every 3 volumes of it, 1 volume of a hot solution of glue. On cooling, the mixture will remain liquid. By adding a little salicylic or carbolic acid to the hot mixture, the keeping quality of the compound will be improved.—*Ph. Zeitsch. f. Russl.*

## QUERIES & ANSWERS.

*Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer, for the information of the editor, but not for publication.*

No. 2,050.—**Violet Sachet Powder** (D. & L.).

We are informed by a correspondent in Europe that the perfumer who is said to have used the formula for Violet Sachet Powder published on page 180 of our September number, in which 4 fl. oz. of Cologne are directed as one of the ingredients, used Farina's Cologne.

No. 2,051.—**Acid-proof Bronze** (J. M. H.).

A recent number of the *Metallarbeiter* states that the following mixture, patented in Austria, is very resistant to acids and alkalies:

| | | |
|---|---|---|
| Copper | 15 | parts. |
| Tin | 2.34 | " |
| Lead | 1.82 | " |
| Antimony | 1 | " |

It has been recommended, in place of hard rubber or porcelain, for chemical utensils, pumps, etc.

No. 2,052.—**Polishing Powder for Silver, Gold and Plated Ware, and Brass** (S.).

The following are recommended by Dieterich:

1. *For Silver.* Calcined Magnesia, 90 parts; Colcothar (Jewelers' rouge), 10 parts.
2. *For Gold.* Calcined Magnesia, 50 parts; Colcothar, 50 parts.

Of course, for plated ware, either of the above may be employed. The powders are to be used dry.

3. *For Brass* the following will answer:

| | | |
|---|---|---|
| Oleic Acid | 100 | parts. |
| Vaseline | 100 | " |
| Colcothar | 50 | " |

Rub with this compound, then wipe it off, and clean with a mixture of colcothar and talcum.

No. 2,053.—**Black Indelible Ink** (S.).

We have given many formulas in previous issues, to which we now add the following quoted by Dieterich:

| | | | |
|---|---|---|---|
| Nitrate of Silver | By weight, | 25 | parts. |
| Gum Arabic | " | 15 | " |
| Stronger Water of Ammonia | " | 60 | " |
| Lampblack | " | 2 | " |

Dissolve the Nitrate of Silver and Gum Arabic in the Water of Ammonia [by agitation in a dark amber-colored bottle]; then incorporate the Lampblack by trituration.

When using it, use a quill pen, allow the writing to dry, then pass a hot sad-iron over it.

If the quantity of gum arabic is increased to 25 parts, the ink may be spread out on a plate of glass, and a rubber stamp may then be used to apply it. When dry it is ironed over as in the previous case.

No. 2,054.—**Artificial Codeine** (G. B.).

We are not aware that artificial codeine is made in this country. Even in Europe, where there are said to be several individuals or firms who have attempted to make, or who have actually prepared this alkaloid, no definite information seems to be accessible at present. At all events, it is quite certain that, while codeine can be made synthetically, it has so far not been built up from the elements or common substances, since its ultimate composition has not yet been made out further than that it is a methyl derivative of morphine. And, so far as we are aware, the patents covering the preparation of artificial codeine start from morphine. The patent granted to Albert Knoll, of Ludwigshafen (Germ. Pat. No. 39,877), covers the treatment of morphine or of compounds of morphine with alkalies or alkaline earths, with salts of sulphomethylic acid, under the application of a gentle heat. The result is codeine. On substituting sulphethylic for sulphomethylic acid, a new derivative, namely, ethyl-morphine, is produced.

No. 2,055.—**Artificial Fruit-Ethers** (R.).

The so-called artificial fruit-ethers, being compounds of certain acids of the "fatty" series with ethyl or amyl, cannot be made with advantage on the small scale. It is advisable to purchase them ready-made from the manufacturers or wholesale dealers. In general, they are prepared by distilling a mixture of the sodium salt of the corresponding fatty acid (butyric, valerianic, etc.) with alcohol and sulphuric acid. For instance, formic ether (ethyl formate) is prepared by mixing 8 parts of formate of sodium with 7 parts of 95% per cent alcohol and 11 parts of sulphuric acid, and distilling. The product must then be rectified. The large manufacturers have special facilities for preparing the fatty acids, and as these are the starting points, and would probably have to be purchased ready-prepared after all, it is safe to conclude that it would cost you more to make the ethers yourself than if you were to purchase them.

The best works on the preparation of these compounds, in our judgment, are the following: *Die Fabrikation der Aether und Grundessenzen*, by Dr. Th. Horatius, 8vo, Wien, 1881, and *Chemisch-technisches Universal-Receptbuch*, von C. Hofmann, 2 vols., 8vo, Berlin, 1880–82.

No. 2,056.—**Mannite** ("Saccharin").

Mannite which has been proposed as an admixture to, or rather diluent of, saccharin, is a variety of sugar, rather widely distributed through the vegetable kingdom, and usually obtained from manna. Mannite is capable of being fermented only under special conditions. Yeast will not effect this. Mannite can be obtained artificially by treating glucose with sodium amalgam, but it is not reconverted into glucose when taken internally by diabetic patients. Its preparation is not difficult, but care must be taken to completely exclude every trace of glucose which accompanies mannite in natural manna. Manna reduces Fehling's solution copiously, while pure mannite does not affect it at all. This test is therefore conclusive as to the presence or absence of the former.

To prepare mannite, manna is either exhausted with boiling alcohol (sp. gr. about 0.890, or ab. 70% by vol.), and the crystals which separate on cooling once or twice recrystallized. Or, manna is dissolved in one-half its weight of water, the solution mixed with white of egg, raised to boiling so as to clarify it, and the solution filtered and allowed to crystallize. The crystals are separated by pressing the semiliquid mass, redissolved in water, and boiled with animal charcoal. On cooling the filtrate, nearly pure mannite is obtained in crystals. By another recrystallization, the substance is usually obtained in a perfectly pure state.

No. 2,057.—"**Hyocholsaeure**" (N. Y.).

The question is asked, What is "hyocholsäure"? Our correspondent has searched in vain in the literature accessible to him.

In English, the substance is "hyocholic acid." The bile of man and of animals in general contains certain acids, which have received names, recalling the origin of the former from the *bile* (χολή). Human bile contains an acid which has received the name *anthropo-cholic acid* ($C_{18}H_{28}O_4$). The bile of horned cattle and of dogs contains two acids, one of them called *tauro-cholic* and the other *glyco-cholic acid*. When either of these is boiled for some hours with hydrochloric acid or with baryta, they take up the elements of water and are, each, decomposed into two new bodies, viz., *tauro-cholic acid* into *taurin* and *cholalic acid* (usually called more briefly "*cholic acid*," (though this term had better be reserved as for the general denomination of the whole series of biliary acids); and *glyco-cholic acid* into *glycocol* and *cholalic* (or *cholic*) *acid*. When baryta water was used to decompose the two original acids, the *cholalic* (or *cholic*) *acid* remains in combination with barium and may be isolated therefrom. If, however, hydrochloric acid was used, then the decomposition extends further, and the *cholalic* (or *cholic*) acid is changed, by losing the elements of two molecules of water into *dyslysin*.

The bile of hogs (Greek ὗς, hys) also contains these two acids, but both of a slightly modified form, and to distinguish them from those of the ox-gall, the prefix *hyo* is put before them; thus we have *hyo-tauro-cholic acid*, and *hyo-glyco-cholic acid*. And when these are decomposed in the same manner as just described, they yield, respectively, *taurin* and *hyocholic acid*, and *glycocol* and *hyocholic acid*. It is probable that there are many special forms or modifications of the above biliary acids distributed through the animal kingdom. Some of them have been examined. For instance, the bile of geese contains a variety which has received the name *cheno-cholic acid* (from χήν goose). This has played a brief rôle, some years ago, in therapeutics.

No. 2,058.—**Test for Water in Milk** (Metr.)

The only absolutely reliable test for an excess of water in milk is an actual quantitative determination by drying a sample of the milk to a constant weight. This is now usually done on Adams' coils, consisting of strips of blotting paper rolled together with interposition of a string, and thoroughly exhausted by ether, etc., before being used.

The next best method is by means of the lactometer, which is an instrument graduated so as to mark 100 degrees when floating in milk of the lowest standard admissible by law at a temperature of 60° F.; the graduation below 100 degrees indicates at once the amount of water that had been added, provided the milk was originally of the low grade standard of 100 degrees. For instance, if the lactometer stands at 90 degrees, this means that, if the milk stood originally at 100 degrees (corresponding to a specific gravity of 1.029), then this particular lot is composed of 90 volumes of this milk and 10 of water. When the lactometer stands above 100 degrees—and under ordinary circumstances it ought always to stand more or less above it, because normal cow's milk is only rarely as low at 1.029 sp. gr.— then the graduation may, practically, be interpreted to represent in 100 volumes of the milk, the amount of milk-solids contained in as many volumes of 100 degree milk as are indicated by the mark at which the instrument floats. For instance, if the lactometer stands at 120, then the milk contains in 100 volumes an amount of milk-solids equal to that contained in 120 volumes of 100 degree milk.

There is, however, a method by which the addition of water to milk, under certain conditions, may be recognised chemically. This is the case, when the water used for adulterating the milk has been taken from wells. When milk is adulterated on a farm or in country towns where no regular water service exists, the water for all domestic purposes is usually taken from wells. Now, well-water always contains more or less nitrates. And such water assumes a blue tint when a solution of diphenylamine is added to it. The application of this test to milk is as follows:

1 C.c. of solution of diphenylamine sulphate is put into a small porcelain dish, and a few drops of milk are dropped in. If the milk has been diluted with water, a blue color will gradually appear, unless the added water has been practically free from nitrates. The test fails with milk adulterated with 25% of water, when the latter contains 0.010 Gm. of nitric anhydride per liter, but is successful with 5% of well water. The test may, therefore, be sometimes of great use in doubtful cases of milk dilution. This is known as Herz's test (modified by Szilasi).

No. 2,059.—**Typhoid Reaction of Urine** (Ehrlich's Test) (B. B.).

Some years ago, Dr. Ehrlich announced a urinary reaction, which was reported to occur only when the body was affected by certain febrile diseases, such as measles, typhoid, typhus, and rapid phthisis, and the gradual increase or diminution of which could be used as a criterion for the progress of the disease. The test is still held to be reliable, so far as we know, though no investigations appear to have been made, either as to the cause of the reaction or its constant reliability.

The test requires the preparation of two test-solutions, namely:

*A. Solution of Sulphanilic Acid.*

| | |
|---|---|
| Hydrochloric Acid (sp. gr. 1.124)...... .. .... | 5 parts. |
| Distilled Water.......................... ...... | 100 " |
| Sulphanilic Acid...................... ....... | q. s. |

Mix the hydrochloric acid and water, and saturate the liquid with the sulphanilic acid.

*B. Solution of Nitrite of Sodium.*

| | |
|---|---|
| Nitrite of Sodium......... .................. | 1 part. |
| Distilled Water........................ ...... | 200 parts. |

Dissolve.

In cold weather, these two solutions will keep for some time, but it is always preferable to make them freshly when wanted for use. The mixture of hydrochloric acid and water for solution A may be kept always on hand. It will then be only necessary to measure out the required quantity and to saturate it with the sulphanilic acid.

It requires about 1 part of sulphanilic acid to saturate 100 parts (by weight) of the diluted acid.

For use, mix, by weight:

| | | |
|---|---|---|
| *C.* | Sol. *A*.... ......................... ........ | 50.0 Gm. |
| | Sol. *B*................................... | 1.2 " |

Fill a test-tube one-third full of the urine to be examined. Then add an equal volume of the test-liquid (*C*). This will cause a yellow coloration. Then add strong water of ammonia to alkaline reaction (about 1-2 fluidrachms will suffice). This produces in normal and non-febrile urine a beautiful reddish color, in which, after standing 24 hours, a deposit of phosphates of natural light gray color is thrown down.

If the urine is derived from febrile cases, suffering from measles, typhoid, typhus, rapid phthisis, etc., the mixture of urine and test-solution C turns *darker*, with a *purplish* tinge. After 24 hours, there will be a deposit of phosphates of an *olive-green* color.

No. 2,060.—**Construction of Alcohol Burner under a Boiler** (H. W. M.).

This subscriber writes;

"Please let me know how I shall proceed to fix a steel pipe of ¼ inch diameter, 16 inches long, to burn alcohol to heat a small boiler 14 inches long. I drilled holes one inch apart (⅛" diam.) and filled the pipe with asbestos. I allowed the asbestos to get thoroughly saturated with alcohol, but it will hardly burn at all, only three or four holes giving a flame. Asbestos was rather powdered, not in fibres, and loosely packed in tube. By elevating the end of the pipe attached to the reservoir the alcohol would freely flow through the pipes and set everything afire. As I can only use a pipe and alcohol as fuel, you would greatly oblige me by giving me practical directions.

"The reservoir has a cover with a small air-hole in it."

It is difficult to give advice in a case of this kind without actual experiments. Of course, to make the latter would require tools, material, and time, which are not at our disposal. But, if we had these, we should certainly try the following plan, with the expectation of probable success.

Drill the holes in the pipe sufficiently large to permit the insertion of metallic wick-holders. For this purpose ordinary gas-burners, with the tips removed, or filed off, may be used. Instead of drilling holes in the pipe, you may use one or more so-called branch-tees, the outlets of which may be suitably reduced by bushings so as to fit the burners to be inserted. Then we would procure incombustible asbestos wick, and, having passed a bunch through each burner, sufficiently long to reach to the bottom of the tube, we would screw the burners in. The asbestos wick must be firm enough to prevent alcohol from being forced upwards too rapidly by pressure, but must not be too firm, as this may interfere with the capillary attraction. The reservoir may then be connected with the pipe, but we should place a *stop-cock* between the two, which we should regulate so as to admit only alcohol enough to keep the lower half of the tube filled. Under these circumstances we would expect success.

Instead of using a stop-cock for regulating the flow of alcohol, which always involves more or less doubt, as the eye cannot watch the process in the interior of the metallic pipe, the well-known constant-level arrangement now usually fitted to water-baths may be used. This may be attached to the tube at a sufficient distance from the burners to prevent ignition of the alcohol. If a screen or wall could separate the burner-tube and the reservoir with level, so much the better. The inflow of alcohol into the "level" may be easily regulated, and, if necessary, watched by the eye, and the overflow of alcohol collected in a second reservoir. Evaporation of alcohol from the open end of the level could be easily prevented by a glass cap.

No. 2,061.—**Diastase (Ptyalin)** (Richmond).

There are several manufacturers who make "Diastase" for sale. Recently we had occasion to test the quality of this commercial product, as we intended to employ it in the preparation of the *Pulvis Pepsini Compositus* of the Draft of the National Formulary.

The commercial diastase is said to be prepared by a process formulated after the following method given by Payen for obtaining *pure* diastase: perfectly clean barley is malted, and when the sprouts have attained the size of the original seeds the malt is dried in a current of air at a temperature not exceeding 50° C. The sprouts are then removed, the seeds powdered and macerated with two volumes of water at 30° C. for one or two hours. The solution is quickly filtered off, then cautiously heated to 70° C. so as to coagulate the albumin. The filtrate is then precipitated with alcohol, the precipitate spread upon plates and dried at a low temperature in vacuo.

Diastase is very easily rendered inert by various causes. According to Dubrunfaut, even *drying* alone seriously affects its efficacy. Mineral acids likewise neutralize this. Hence it does not seem proper to administer it in combination with hydrochloric or other mineral acids. But, even if this were not objectionable, the main difficulty lies in this, that there does not seem to be any commercial diastase which is worthy of the name. We examined several kinds in the following manner:

10 Gm. of starch was mixed with 100 C.c. of water; the mixture heated until the starch was gelatinized, and the jelly diluted with water to 1,000 C.c. Of this solution, portions of 300, 200, 100, 50 and 25 C.c., representing, respectively, 3, 2, 1, 0.5, and 0.25 Gm. of starch, were placed into separate vials, and to each were added 4 C.c. of a solution prepared from 0.5 Gm. of "diastase" and 1000 C.c. of water. The relation of the amount of diastase to the several samples of starch will be seen from the following table:

| | Starch Solution. | Diastase Solution. | Proportion of Starch to Diastase. |
|---|---|---|---|
| 1. | 300 C.c. | 4 C.c. | 1,500 to 1 |
| 2. | 200 " | 4 " | 1,000 " 1 |
| 3. | 100 " | 4 " | 500 " 1 |
| 4. | 50 " | 4 " | 250 " 1 |
| 5. | 25 " | 4 " | 125 " 1 |

The several flasks were then placed in a hot-air closet and kept at a temperature of about 54° C. (130° F.) for half an hour. At the end of this time, no change was noticeable in any of the flasks, and the iodine reaction was in each case still as prominent as it had been before the experiment.

The flasks were then replaced in the hot-air closet, and the temperature raised to and maintained at 60–62° C. (140–144° F.), for it is known that the action of diastase upon starch is most energetic between 60° and 75° C. The contents of the flasks were tested from time to time. To flask No. 5 there were, besides, added 20 milligrammes of the diastase in substance. At the end of eight hours, the contents of the latter flask ceased to give a blue reaction with iodine, the color produced by this reagent being a pale reddish-brown. All the other flasks still gave the blue iodide of starch reaction.

The result shows that the diastase was almost inert. On repeating the experiment with another original vial of diastase, the same result was obtained. We are, therefore, decidedly of the opinion that the supposed efficacy of the *commercial* diastase is a delusion, and that its presence in any commercial digestive powder is useless. Moreover, diastase is so easily rendered inert by the presence of alkalies or acids, that we place little dependence upon it in an artificially prepared mixture intended to have digestive effects.

No. 2,062.—**Solvent for Terpin** (E. O., Chicago).

On page 140 of this volume you will find a formula for a solvent of terpin.

No. 2,063.—**Cornutine** (Subscriber).

This costs about $10.00 per *gramme*, and is not commonly kept in stock by pharmacists. Indeed, its principal usefulness is as a substance for scientifically inclined men to write about; practically it appears to be of no value.

No. 2,064.—**National Formulary** (Subscriber).

The National Formulary, prepared under the authority of the Amer. Pharm. Association, is at present passing through the press, and may be expected to appear about March 1st, 1888.

### Information Wanted.

1. What is "Solias & Meriam's Marvellous Tropic Water?"

* * *

**Powdered Camphor.**—Messrs. Schimmel & Co., of Leipzig, have put on the market a purified camphor in form of *fine, snow-white powder*, containing a few per cents of moisture which are purposely left therein, as this will prevent it effectually from caking together. It is not sublimed, as they expressly state, but can be used for all purposes.

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The Crystallography of Butter and Fats: Abstract of Dr. Thomas Taylor's paper in the Annual Report of the U. S. Department of Agriculture for 1886.

This series of six plates contains a large number of illustrations of the appearance under the microscope of butter, lard, various animal fats, cotton-seed oil, etc., in different forms and conditions. An inspection of the figures does not encourage confidence in this mode of determining the purity of butter or lard. The figures themselves are from photographs by Persh, Gascoyne, Walmsley, and Ditmers, and are handsome specimens of this form of art.

The Principles of Theoretical Chemistry, with Special Reference to the Constitution of Chemical Compounds. By Ira Remsen, Professor of Chemistry in the Johns Hopkins University. Third edition, enlarged and thoroughly revised. Philadelphia: Lea Brothers & Co., 1887, pp. 318, 8vo. Muslin, $2.00.

The author expresses surprise at the success which attended the publication of the first two editions of this work, but the appreciation seems to us quite natural. The changes which have taken place, within a short period, in chemical science, render the theoretical portions of most well-known text-books in the English language extremely defective.

The following synopsis of contents will best explain the scope of the work:

Combining numbers, atomic weights, atomic theory, examination of gaseous elements and compounds, examination of solid elements and compounds, properties of the elements as functions of their atomic weights, the periodic law, valence, constitution or structure of chemical compounds, definition of constitution, etc., constitution of classes of compounds, monobasic acids, unsaturated compounds allied to the marsh-gas derivatives, benzin derivatives (aromatic compounds), physical methods for the determination of the constitution of chemical compounds, the study of chemical affinity, connection between the chemical constitution and properties of compounds.

A Manual of Organic Materia Medica. Being a Guide to Materia Medica of the Vegetable and Animal Kingdoms, for the use of Students, Druggists, Pharmacists, and Physicians. By John M. Maisch, Phar.D., Professor of Materia Medica and Botany in the Philadelphia College of Pharmacy. Third edition. With 257 illustrations. Philadelphia: Lea Brothers & Co., 1887, pp. 532, 8vo, Muslin, $3.00.

The extent to which this manual has already been introduced as a text-book for pharmaceutical and medical students renders any extended notice unnecessary.

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